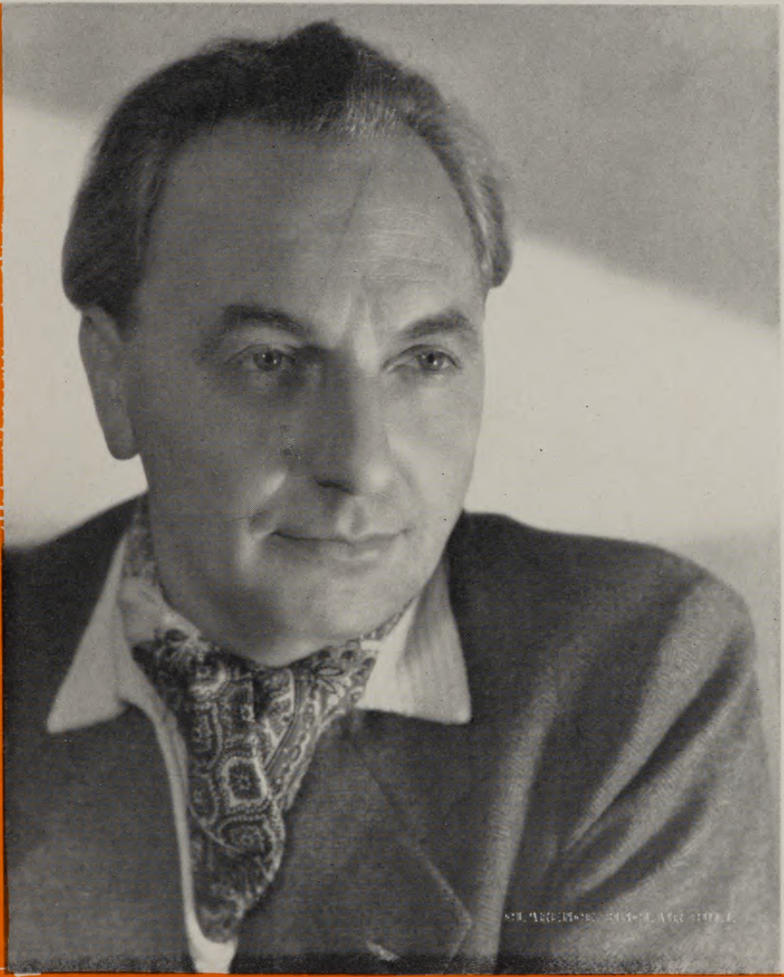
AMERICAN CINEMATOGRAPHER

The Motion Picture CAMERA Magazine



HAL MOHR
A. S. C.
See Page 143

April, 1936
PRICE 25c

Published in Hollywood,
by
American Society of Cinematographers

MODERN TIMES

on Broadway

Photographed by
ROLLIE TOTHEROH
and
IRA MORGAN

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AMERICAN CINEMATOGRAPHER

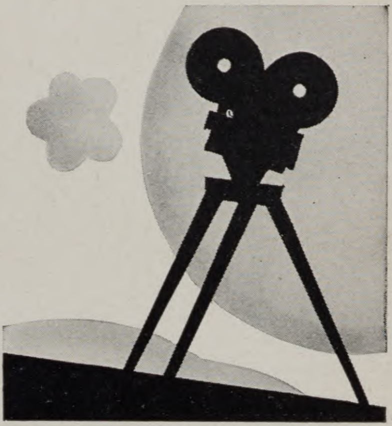
A Technical and Educational publication
of motion picture photography.

Published monthly by the
AMERICAN SOCIETY
OF CINEMATOGRAPHERS, INC.
6331 Hollywood Boulevard
Hollywood, California

Telephone GRanite 2135

JOHN ARNOLD, President, A.S.C.
FRED JACKMAN, Treasurer, A.S.C.

Volume 17 **April, 1936** **Number 4**



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Next Month

● Dr. Meyer will write his concluding article on the Problems of Controlling Correct Photographic Reproduction. This has proved a valuable series to those in laboratory work.

● Harry Burdick has prepared for us a fine word description of Joseph August, A.S.C., who has been a part of the motion picture industry for many years. August is now photographing Katherine Hepburn's latest picture.

ESTABLISHED 1918. Advertising Rates on application. Subscription: U.S. $2.50 a year; Canada $3.50 a year; Foreign $3.50 a year. Single copies 25c; back numbers 30c. Foreign single copies 35c; back numbers 40c. COPYRIGHT 1936 by American Society of Cinematographers, Inc.

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THE AMERICAN SOCIETY OF CINEMATOGRAPHERS was founded in 1918 for the purpose of bringing into closer confederation and cooperation all those leaders in the cinematographic art and science whose aim is and ever will be to strive for pre-eminence in artistic perfection and technical mastery of this art and science. Its purpose is to further the artistic and scientific advancement of the cinema and its allied crafts through unceasing research and experimentation as well as through bringing the artists and the scientists of cinematography into more intimate fellowship. To this end its membership is composed of the outstanding cinematographers of the world with Associate and Honorary memberships bestowed upon those who, though not active cinematographers, are engaged none the less in kindred pursuits, and who have, by their achievements, contributed outstandingly to the progress of cinematography as an Art or as a Science. To further these lofty aims and to fittingly chronicle the progress of cinematography, the Society's publication, The American Cinematographer, is dedicated.

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A New

Enlargement from a frame of Keller-Dorian color film.

AT A TIME when public and press are tendering an enthusiastic welcome to good natural-color films, the introduction of a new three-color process of natural-color cinematography, perfected to the point of commercial practicability, must be regarded as more than ordinarily significant. The process in question is the Keller-Dorian Process, an Additive three-color system in which but a single negative passes through the camera, and standard black-and-white cameras with but minor optical modification are used.

The Keller-Dorian process is not a recent development. It originated in Europe a decade and a half ago, and in its 16mm. version (known in this country as "Kodacolor") has been used by numbers of 16mm. enthusiasts. The task of adapting the process to professional requirements has been carried on for some years by the joint researches of the Eastman Kodak Co., Paramount Productions, and the Keller-Dorian Company. During the last year, these activities have been transferred to Paramount's Hollywood studio, where under the joint guidance of Dr. J. G. Capstaff, Dr. N. M. La Porte, and Farciot Edouart, A.S.C., the process has been proved practical under actual studio conditions.

It may be well, before discussing the details of the process, to review briefly the principles underlying not only this, but all methods of natural-color photography. Medical science shows that the human eye has three sets of color-sensitive nerve-fibrils; when all three are excited equally, we get the impression of white; when but one is excited, we get the impression of whatever color that nerve is sensitive to—red, blue or green. When two or more of the nerves are excited unequally, we get the impression of a corresponding mixture of the primary colors. Thus, if we can divide a scene into three photographs, filtered so that each represents one of the primary colors, when we recombine the prints of our three pictures (each colored or filtered by its proper primary), we can achieve a perfect photographic reproduction of the scene in its natural colors.

It is possible to get a partial result by using only two of the three primaries—usually red and either blue or blue-green. But leaving out one of the three essential primaries, it is impossible to get a perfect reproduction of color, while certain shades absolutely cannot be reproduced.

As a motion picture is projected by transmitted light, it can easily be seen that there are two ways of obtaining a colored picture on the screen. The first is to recombine our three primary-color images in a fully colored print, so that, starting with the white light of the projector, the print itself removes from the beam all of the color-frequencies save those desired to make up any given portion of the picture. This is known as the Subtractive method. The second method utilizes a simple black-and-white print, and places appropriate filters between the film and the screen, virtually adding color to the shadow of the black-and-white image. This is known as the Additive method.

Subtractive printing has made great strides within the past few years, but as it almost invariably depends on replacing or supplementing the regular photographic image with one or more dye-images, the process of printing is intricate.

The Additive method relies on well-understood black-and-white printing methods, and achieves its colored picture by photographic means. The image is photographic, colored only by the filters.

In the Keller-Dorian process, the Additive method is used, contrived so that the three necessary primary-color separations are formed in a single image on a single frame. A special film is used, with minute cylindrical lenses embossed on the film-base. The film is threaded into the camera with the emulsion away from the lens, and the myriad tiny lens-strips embossed on the film-base facing the lens. On the lens itself is placed a filter which consists of parallel strips of red, blue and green. The lenticulations on the film-base each forms a microscopic image of the filter stripes on the emulsion, with the result that the picture as a whole consists of an infinite number of parallel strips, each photographed through one of the three primary-color filter areas on the lens. Thus in photographing, for example, a blue object, the blue light passes freely through the blue-filtered section of the lens, but is absorbed by the red and green filter-sections. The embossed lenticulations on the film-base reproduce this condition in making the exposure: the area governed by the blue filter is the only one exposed, while the adjacent red and green filtered strips receive no exposure. When the film is developed, the blue area is dense, and the unexposed red and green filtered areas are clear. In the positive, this is of course reversed; the red and green filtered strips are opaque, while the blue strip is clear. In projection, filters similar to the taking filter are fitted to the projector's lens. Thus white light from the projection-lamp falling upon this area will be able to pass through only the blue-exposed strip. From this, the tiny lens embossed on the film-base guides it to the blue-filtered part of the projection lens, and the image of the blue object is re-created on the screen, in its original color.

In practice, any camera satisfactory for studio use may be fitted with the Keller-Dorian optical system and used to photograph color by this process. The lens used is of special design, with an effective aperture of f:1.9. The filter-unit is mounted in the center of the lens, between the elements. The front element is fixed, but the rear element is interchangeable: using different rear elements in combination with the fixed front element allows the lens to be converted to any desired focal length without disturbing the necessarily delicate relationship between the lens, filter and film-embossings. A special anti-fringe optical unit is mounted directly in front of the aperture. This re-focuses the red-filter image, keeping it constantly in register with the blue and green ones regardless of the focal setting of the lens, and eliminating the red fringe sometimes noticed in out-of-focus Kodacolor.

Three-Color Process

by
William Stull, A.S.C.

Due to the nature of the process, the reversal system is used instead of the familiar negative-positive. Thus, the film originally exposed in the camera is reversed into a positive image for projection. Release-prints may be made optically, or by contact-printing, a reversal emulsion being used in either case. The quality of the prints is in every way comparable to that of the original, and as the printing process is a simple photographic operation, the results are uniform and economical.

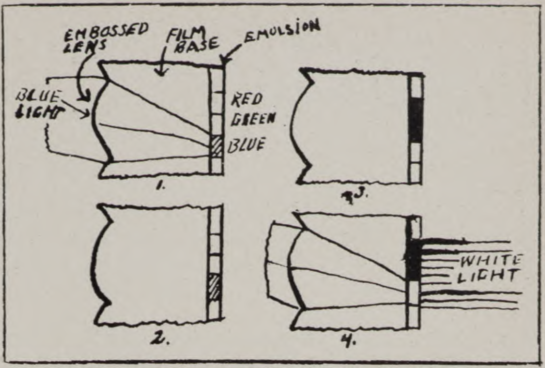
All that is basically necessary for projection is to apply the requisite projecting-filter to the lens of any good, modern projector. The best results will naturally follow the use of a fast lens designed to coordinate with the filters and lenticulations. As in all color processes, a projection lamp of the highest intensity is preferable.

In photographing, essentially normal black-and-white technique can be used. Incandescent lighting is employed, and the increase in intensity over the average black-and-white level is not excessive: from 30% to 50% more light is generally used, and balanced a trifle flatter than would usually be done in monochrome filming. According to the individual technique of the cinematograhper, this increase may be obtained either by the use of more lamps, by the use of larger or more efficient ones, or by using less diffusion with his usual lighting. The chromatic differences between Mazda and sunlight are quickly compensated for by a simple adjustment of the taking filter which reduces the area of the red section. By this same means, it is also possible to secure any special color-balance which the cinematographer may desire.

Any cinematographer can make successful color-films by this process after only a few hours' instruction and explanation. Virtually every Director of Photography on the Paramount staff has photographed tests in color by this process, with uniformly excellent results. The writer has viewed tests photographed by such men as Charles Lang, A.S.C., Victor Milner, A.S.C., Karl Struss, A.S.C. and others: In each instance, the individual artistic technique of the cinematographer was as plainly evident in the color-film as in the artist's more accustomed black-and-white.

Anything possible in black-and-white photography appears to be equally practical in Keller-Dorian color. In the realm of special-effects Cinematography, miniature and optical-printer shots should be quite practical; and while color's requirement of increased light in both projection and photography is an undoubted problem in the making of background-projection shots in color, no other difficulty appears to exist.

The problem of printing was for a long time the stumbling-block of the Keller-Dorian process. Today, due to the researches conducted by the Paramount and Eastman experts, first-class color-prints can be made either optically or by contact, and made economically. Moreover, thoroughly satisfactory black-and-white dupes can be made from the color negative, in order to supply theatres not equipped for color-projection.



Action of lenticular embossings

The definition obtainable in either originals or prints is quite on a par with black-and-white. The question naturally arises, "Do the embossed lenticulations on the film-base interfere with the definition, or show up unpleasantly on the screen?" In both cases, the answer is no. The lenticulations are so extremely minute—29 to the millimetre, or approximately 724 to the inch—that they are invisible except when one approaches abnormally close to the screen. Many of the earlier tests were made with a much coarser embossing (550 to the inch), and tests in theatre projection showed that in the average theatre, the lines were not seen by anyone seated beyond the fifth row of seats. Moreover, if conditions warrant, it is at present possible to use still finer embossings, up to 35 lines per mm. (875 per inch). A further advantage is the fact that instead of running vertically, as in the amateur version of the process, the embossings are disposed horizontally—a fact which in itself renders them less evident.

Sound-recording is done in the usual manner, the only change necessary being that, due to the reversal, the track is recorded at the opposite edge of the film. The track is contact-printed onto the release-prints in much the usual manner. The embossings do not, according to tests made by sound experts, in any way interfere with sound quality; ground-noises due to the film are almost identical with those now occurring in black-and-white production. Should it be necessary, however, the sound-track area may be left clear of embossings, giving a track in every way identical with those on monochrome releases.

The economic side of the question is of interest. The cost of equipment for Keller-Dorian color prduction is essentially the same as for black-and-white. Standard black-and-white cameras, lighting equipment, etc., are used, and standard developing-machines can be converted to meet the added needs of reversal-processing. In actual production, a unit using this process can work quite as efficiently as it would making the same picture in black-and-white. The extra expense of art-direction and costuming for color will be approximately the same for any color process: the exact increase (if any) over black-and-white requirements would naturally depend on the producer's individual policy.

The photographic cost is very little higher than that of monochrome filming. The camerawork can be entrusted to the studio's regular camera staff; virtually all technical details can be handled by regular black-and-white-trained personnel. Lighting-costs are maintained close to the black-and-white level, since regular incandescent equipment can be used. The charges for film, processing, "rushes" and release-prints for an average Class "A" feature produced in Keller-Dorian color may be estimated at approximately $9 per release foot, as compared to $4.50 for black-and-white. This is on a semi-experimental basis; in volume production it is estimated these charges would be materially lowered, bringing the costs of the process into even closer alignment with black-and-white.

Problems of Controlling Correct Photographic Reproduction

PART 5

by
Dr. Herbert Meyer, A.S.C.
Head of Hollywood Research Bureau,
Agfa, Ansco Corporation

FROM THE FOREGOING ARTICLES we might now conclude that the principal difficulties in rendering correct photographic reproduction are caused by the following reasons:

a. Total visual contrast in the natural object is composed of three variables, brilliance contrast, color-hue contrast, and color saturation contrast. Contrast in the photographic reproduction can only be rendered by brightness contrast.

b. The color sensitivity curve of the eye is far different from that of any negative emulsion.

It is indeed remarkable that the professional cameraman, thanks to his sense of feeling and intuition, is able to overcome these difficulties regardless of the fact that he is not provided with instruments which would enable him to measure these variables quantitatively, and to adjust exposure and lighting conditions correspondingly. It might also be considered lamentable that the present day technic in this respect is comparable to that of the days when the "negative timer" was forced to judge the printing lights by visual examination of the negative without the aid of the Cinex tester. The question, therefore, arises as to what has been done and could be done to mechanize measurements of these existing differences by means of reliable instruments.

It has been mentioned before that correct photographic reproduction involves two different problems, that of exact reproduction of brightness distribution in the object which is referred to as "Orthochromatic reproduction," and that of deliberately distorted reproduction.

Orthochromatic reproduction requires balancing of the color sensitivity curve of the negative film material used to that of the eye. This can be done by photographing through a compensating filter. The spectrophotometric transmission curve of such a filter is constructed by dividing the ordinates of the visibility curve by the corresponding ordinates of the photographic sensitivity curve of the negative material and by plotting the values thus obtained against wave length. A filter of this type, in combination with supersensitive Panchromatic emulsions, would be rather prohibitive for practical use due to the magnitude of the exposure factor necessary. For this reason a compromise must be considered and for practical Orthochromatic reproduction filters of a dark yellow or yellow-green color are used, such as Wratten G or Aero Nos. 1 and 2, which give sufficient approximation to the theoretical ideal in combination with supersensitive Panchromatic negative film.

In connection with Orthochromatic reproduction, different monochromatic viewing filters are in existence and are widely used by the cameraman. Filters of this kind, like for instance, the Wratten yellow filter No. 90, transmit only a narrow region of the spectrum. In looking through such a filter it is possible to distinguish between a red and a green, but the difference between these colors is so subdued that relative differences in hue or saturation cannot be determined any longer. This enables the observer to judge the object to be photographed by brilliance differences only, and thus to anticipate the results of reproducing total visual contrast by brilliance contrast alone before the exposure is made.

In speaking of black and white reproduction, it will be clear that the problem can only consist of correctly reproducing total visual contrast, which means it is not primarily necessary or even desirable to reproduce correctly one of the three single factors of which total visual contrast is composed. If we consider for instance an object in which brilliance contrast is absent or zero, it will be necessary to reproduce in the negative and print the remaining hue or saturation contrast or both by means of brightness contrast. This means that if different areas in the object are equal in brightness, it is only by destroying this equality that an existing visual contrast due to hue or saturation difference can be correctly registered in the photographic black and white reproduction.

Assuming now that the different color hues in this case are caused by reflected radiation to which the negative material is equally sensitive, it will be seen that to render hue contrast in spite of this condition, a deliberate distortion has to be made. This is accomplished by the use of light filters, which for this reason are also frequently referred to as contrast filters.

Important in connection with this problem of deliberately distorted reproduction is the correct conception of the rather simple principles underlying the proper direction and the necessary degree of any contemplated distortion. To render a color lighter on the photographic brightness scale of the final reproduction, a filter must be used which selectively transmits the same color. To render a color darker a filter must be used which selectively absorbs this color.

As far as the direction of the distortion is concerned there exist certain physical and psychological laws which make it appear best to render colors of longer wave length lighter than those of shorter wave length. The former include red, orange, yellow and yellow-green, and may be referred to as "warm colors". The latter include blue-green, blue, and violet, and are called "cool colors". In case of non-spectral hues, the purples, which reflect red and violet, the ones in which red predominates, are classed with "warm colors", while those in which blue predominates are classed with "cool colors".*

In addition to the monochromatic viewing filters mentioned above, another type of viewing filter is of interest and is also frequently used in practice. This filter is of a purple tint, thus enhancing red and blue colors, and de-

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*(L. A. Jones, S.M.P.E. Journal, Vol. XI, number 30, page 164 and following).

Continued on page 153

Hal Mohr, A.S.C.

Hal Mohr, A.S.C. Captures Academy Award

HAL MOHR, Past President of the American Society of Cinematographers, was pronounced the industry's premier cinematographer for 1935, receiving the annual cinematographic award of the Academy of Motion Picture Arts and Sciences for his achievement in photographing "A Midsummer Night's Dream." The current award was the first in which the academy's rules permitted write-in votes for candidates other than the officially-nominated slate, and Mohr, in a closely contested balloting, captured first honors as a write-in candidate. So unexpected was this result that Mohr, at the time completing the camera work on "The Green Pastures," had literally to be routed out of bed to be honored.

Photographing "A Midsummer Night's Dream" was in many ways a difficult assignment, and Mohr's achievement has brought him universal acclaim. No production of recent years has owed more to the magic of the camera. In no recent production have the critics paid so lavish tribute to the cinematographer. Almost every review of "A Midsummer Night's Dream" has accorded to the camera work far greater praise than acting or direction; some of them, in fact, have so greatly stressed Mohr's contribution that neither space nor superlatives remained for more than passing mention of cast and director. This praise was merited, for despite the imposing array of stellar and directorial talent, and the sumptuous production, the film is definitely a cameraman's picture.

The technical and artistic problems which Mohr faced were decidedly out of the ordinary. The story intermingled fantasy and reality, with sprites and fairies moving among flesh-and-blood mortals, and effecting supernatural transformations. The two moods could seldom be given an arbitrary separation, but had to be artfully blended in almost every scene. Fred W. Jackman, A.S.C., and his special effects staff contributed outstandingly to many of the bizarre effects, while the making of many other scenes which would ordinarily be classed apart from normal production camera work, devolved upon Mohr and his production crew. From the standpoint of camera-trickery alone, "A Midsummer Night's Dream" was a noteworthy achievement. So, too, was it from the more formal aspect of photographing a mammoth production, and lighting a literally all-star cast. The technical problem of blending real and stage-made exterior sequences was in itself a test of cinematic skill. And with all these technical intricacies confronting him, Cinematographer Mohr succeeded, moreover, in attaining a very high level of sustained pictorialism.

In accepting his award, Mohr says, "In photographing this picture, I had an opportunity to do, on a rather spectacular scale, what every cinematographer worthy of the name strives to do on any production: explore a few of the possibilities of our marvelous art-science. We must constantly seek new ways of picturing old stories, or we cease to progress. Under the conditions which apply to the making of all too many of our films, the cinematographer does not have the opportunity to realize this aim as fully as he desires, though careful analysis shows that even on the least promising productions, our true camera artists are always trying to do so. "A Midsummer Night's Dream" upon which the full resources of a great company were lavished, gave me an opportunity to strive more fruitfully toward this goal. That I attained some measure of success was due not to any personal achievement, but to the whole-hearted support of my co-workers, Operative Cameraman Robert Surtees, A.S.C., and his assistant, Louis De Angelis, A.S.C., to Fred Jackman, A.S.C., and his entire special effects staff, and to Fred Gage and the Warner Bros. laboratory."

Winning second place in the balloting, Victor Milner, A.S.C., with "The Crusades," came within the narrowest margin of attaining the distinction of being the first cinematographer to capture premier honors for two years in succession; "Cleopatra," it will be recalled, brought him the 1934 award, while in the opinion of many observers, his current production was an ever finer achievement. Ray June, A.S.C., with "Barbary Coast," took third place, and Gregg Toland, A.S.C., with a notable film in "Les Miserables," filled the fourth position in the most closely contested award in the academy's history.

Among the other winners may be mentioned Douglas Shearer A.S.C., who as head of the Metro-Goldwyn-Mayer sound department, received the award for the year's best in sound-recording, for "Naughty Marietta."

The awards for scientific and technical achievement brought forth a greater profusion of nominees than any previous year. The nominations in this group tripled those received in 1934, which in turn were double those of 1933.

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Rapid

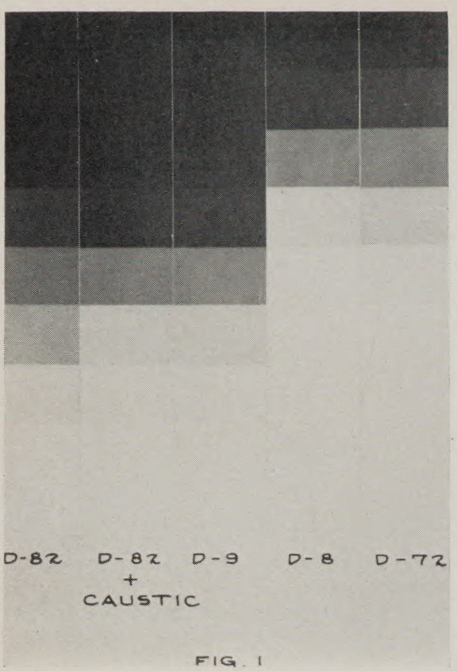


Fig. 1. Appearance of step tablet exposures on Supersensitive Panchromatic cut film, showing relative effect of various developers in the underexposure region.

Methods of Printing

IF DESIRED, the time required for drying the film can be saved by making the prints from the wet negative. This requires some special means for holding the negative, because the usual method of sandwiching the film between sheets of glass is not satisfactory when the film is wet, because the glass becomes heated under the printer light and tends to soften the emulsion, melting it or making it stick to the glass. Also, any buckling of the film caused by uneven or partial drying would tend to form interference rings about the points of contact with the glass.

These difficulties can be avoided by the use of a special holder. The one shown in Figure 2 which grips the negative only by the edges is very satisfactory and convenient to handle, or the Eastman processing frame, illustrated in Figure 3, which is designed to hold cut films so that they may be handled and processed like plates may also be used to hold the film during printing. In either case, the excess water drops must be carefully removed from the surfaces of the film by wiping with moist absorbent cotton, chamois leather, or viscose sponge. When the processing frame is used, the water should be shaken as completely as possible from the grooves of the frame before the film is wiped and care exercised thereafter to prevent shaking more water drops out onto the surface of the film.

Another useful device, though it can be used only with a horizontal enlarger, is shown in Figure 4. This is a very thin liquid cell made of two sheets of glass clamped by the metal frame to a U-shaped separator cut from soft sheet rubber. The cell is large enough to receive the negative and just thick enough (1 to 2 mm.) to allow the film to slide in freely. The frame should grip the glass sides just tightly enough to hold them firmly, but not tightly enough to cause any strains. It may be necessary to soften the surfaces of the rubber separator by moistening with benzine just before assembling the cell to make the joints watertight. The cell is filled with water which has been boiled to free it of dissolved air or it can be filled with fixing bath or hypo solution. In the latter case, it is unnecessary even to rinse the film after fixing, since the liquid in the cell will then have almost exactly the same density and index of refraction as the liquid remaining on and in the film after treatment in the fixing bath. Since the cell may become quite hot if a large number of prints are made, the solution used in the cell should not have a tendency to sulfurize easily. Plain acid baths such as the F-24 fixing bath give very satisfactory service, even when ammonium chloride has been added to give very rapid fixing.

In most projection printers and enlargers there is rather inadequate provision for cooling the lamp house and the negatives are subjected to considerably more heat than is necessary. In most cases, considerable cooling can be effected by providing forced ventilation with compressed air. If the negative is held in a water cell, the air blast may be thrown against the cell to cool it directly, but the greatest advantage is obtained from the general cooling of the lamp house. For direct protection of the negative from the radiant heat of the lamp, a water cell similar in construction to the negative holder but about one inch thick, or a piece of heat absorbing glass, such as the Aklo Heat Resisting Glass made by the Corning Glass Works, or, better, a combination of both, should be placed between the lamp and the negative. If desired, the heat absorbing glass can be used to form one side of the cell. Such a combination will absorb almost all of the infrared or heat radiation which would otherwise heat the negative, without noticeably affecting the visual or the photographic intensity of the light.

If the liquid cell is used alone, it is more effective to use, instead of plain water, a 5 per cent solution of copper sulfate or a 2 per cent solution of curpric chloride which absorb practically all of the infrared radiation. If the printer is to be operated more or less continuously, some provision should be made for removing the heat absorbed by the liquid. This can be accomplished by circulating the liquid through some type of cooling coil. If plain water is used in the cell, this can be cooled by circulating through an automobile hot water heater, the blower fan serving to pull cooling air through the radiator coils.

The General Electric Company has produced a special high intensity lamp which has a water cell built completely around the bulb. The end of this water jacket contains a cooling coil through which tap water is circulated to carry away the heat, while distilled water is used in the jacket to insure highest transmission for the visible light. This lamp can be installed readily in the enlarger, the only requirement being that the lamp be used in a vertical position with the base up.

If a water cell is undesirable, a sheet of heat absorbing glass may be used alone. In this case, the glass should be adequately cooled to remove the heat absorbed. This can be done by forced ventilation around the glass.

PRACTICAL RECOMMENDATIONS

For convenience, the foregoing recommendations were summarized briefly, and the formulas of the various solutions used were given.

Processing Methods

PART 3

by

H. Parker and J. I. Crabtree

Communication No. 577 from the
Kodak Research Laboratories

Two Bath Development

The two bath developer (Formula SD-6) provides for thorough hardening of the emulsion during development, it may be used at temperatures from 65° to 86°F. (best results are obtained at 75° to 80°F.), and it gives a fairly constant degree of development in spite of variations in the development time. The solutions are stable and are not readily oxidized even when standing in trays. The negative should be placed for 1 minute in the first bath, then transferred to the second bath without rinsing, and treated for 1 minute with agitation, taking care not to expose the film unnecessarily to the air in order to avoid aerial fog.

If this treatment does not give sufficient contrast, the negative can be rinsed for 1 or 2 seconds and returned to the first bath for 15 to 30 seconds or longer as desired. This developer is not recommended, however, in cases where it is necessary to obtain the highest contrast or the highest possible emulsion speed.

After development the film should be rinsed for a few seconds in water or an acid stop bath, and fixed in the F-5 fixing bath. It may then be washed briefly in running water and dried rapidly with warm air blasts (conveniently obtained with small electric hair dryers), or it may be placed in one of the holders described and printed from while wet.

When rapid fixing is desired, it is preferable to increase the hypo concentration to 12 ounces in 32 ounces (360 grams in 1 liter).

Single Bath Development

If the solutions for the two bath developer are not available, the D-72 developer may be used full strength, developing about 2 minutes at 65°F. The solution may be used up to 80°F. with the development time reduced accordingly. After development the film should be rinsed for about 5 seconds in an acid stop bath and fixed for 3 minutes or longer in the F.-23 chrome alum fixing bath with thorough agitation, especially during the first minute (at temperatures below 75°F., the F-5 fixing bath may be used).

If the film is not agitated when placed in the chrome alum fixing bath, a greenish-white scum of basic chromium sulfite may be deposited on its surface. This should be removed by swabbing the wet film with moist absorbent cotton, since it is very difficult to remove after the film has been dried. Its formation can be prevented by rinsing and agitating the film properly.

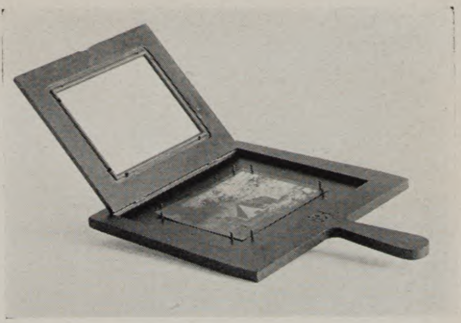


Fig. 2. Holder for printing from wet negatives on cut film.

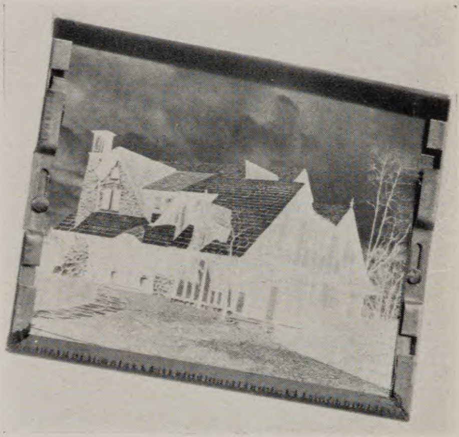


Fig. 3. The Eastman Processing Frame, which allows cut films to be handled like plates during processing and enlarging.

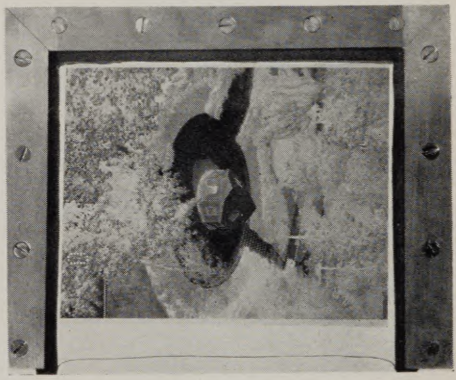


Fig. 4. Thin water cell for holding wet cut films in the enlarger.

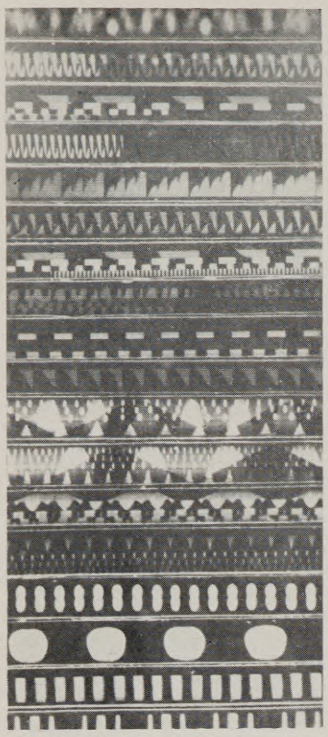
The use of a hardening stop bath is not recommended, because the time available for treatment in the stop bath is only a few seconds, much too short for any effective hardening action.

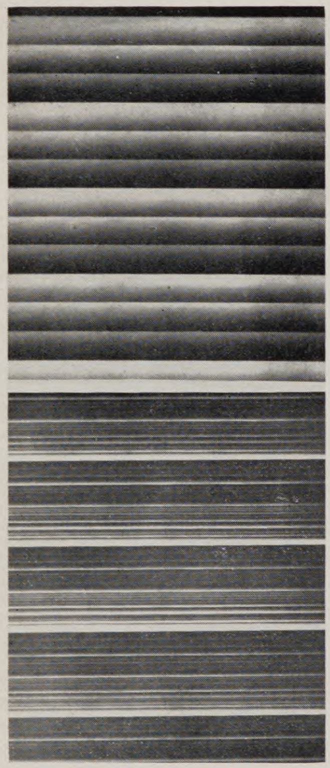
Development at Higher Temperatures

With the two previous methods of development, if the room temperatures are very high, it is necessary to cool the solutions to about 80°F. If this is not desirable, the D-9 caustic process developer with the addition of 1 per cent formalin may be used at temperatures up to 90°F. The development time should be 1 ½ to 2 minutes at 65°F., and less at higher temperatures. After development the

Continued on page 150

Absolute





Top: By means of his discs, Sholpo obtains on the photograph ornaments with various "teeth" giving various timbres, strength and pitch. (From Sholpo's earlier works.)

Bottom: Specimen of the ordinary "intensive" shadow recording, on which Yankovsky is working, obtaining the transverse bars by sliding copying paper.

THE recording of sound upon the sound path of a moving picture film (a narrow ribbon alongside the picture), is usually done in the following way: a musical instrument is played in front of the microphone, the vibrations of the microphone membrane are transferred electrically to the lamp amplifier, and further to the sound recording apparatus where different parts of the sound ribbon are exposed to different intensities of light by means of an oscillograph or some other device. This method involves a good deal of time, and encounters considerable mechanical and electrical hindrances.

From the very beginning of the sound picture epoch, A. Avraamov, the Soviet musical theoretician, together with Pfenniger, the German, and Sholpo and Voinoff, former co-workers of Avraamov, have wondered whether it would not be possible to throw light and shade upon the sound ribbon in a direct manner, by photographing upon the sound ribbon certain ornamental figures — drawings or cardboard or paper designs.

At first, the sounds obtained were mostly of the flute timbre type. Later, a three minute "Hurdy-gurdy" item was tried, and, the timbre of the street organ, being of simple construction, turned out most successful.

Then Voinoff made his "piano," all of which can be fitted into a necktie box. Each of its keys. i. e. each half-tone is represented by a long "comb," which is a schematicized record of the real piano. This schematization did not harm the achievement of the purpose. Voinoff complains only about the extreme bass notes, which, he says, having lost some of the overtones, do not sound as rich. Voinoff has not been able to add the necessary little "teeth" to the large basic ones.

Voinoff fits his "keys" or "combs" on to the regular appliance for multiplication photographing in such a way as to have the "key" exactly on the sound ribbon during the photographing process.

In this manner he has succeeded in photographing two three-minute items: a Prelude by Rachmaninoff, and a fox-trot, "The White Monkey." The Prelude showed especially interesting results. The "designed music," (to be more exact, it was music cut out of paper), came out as an abstract design of diverging circles and prisms. Voinoff has also recorded a multiplication film, "The Thief," in which he has preserved very exactly the rhythms of the whole thing.

Artificial sound seems most suitable for accompanying multiplication films. Its notes have no reverberation whatsoever, they do not create an acoustic "atmosphere" (i. e a sound perspective for the picture to which they are attached).

Generally speaking, music sounds especially agreeable in two cases. One case, for instance, occurs when, on putting on head phone and hearing an orchestral broadcast with the sound perspective of the concert hall fully preserved, one feels as if one were actually present in the concert hall. Or it may happen that the loud speaker in a room creates the complete illusion of music being performed in that very room. This is the case when the acoustics of the radio studio and of the room with the loud speaker somehow correspond to each other.

Radio utilizes this absence of reverberations in "designed" sound very willingly. By broadcasting records of "designed sound," radio, in reality, broadcasts music without reverberation, while the listener hears it with the reverberations of his own room where the listening process takes place. "The designed music of the radio" cannot fail to harmonize with any premises. Any one who has heard the "whispering" of radio heroes in some large halls (a thing frequently encountered, for instance, in radio plays), knows well how falsely such acoustic absurdities sound.

E. Sholpo, of Leningrad, has introduced methods somewhat different from those of Voinoff, and still more refined. He makes his teeth not in the form of a comb, but in the form of a round see-saw with teeth of different size according to the pitch of the octave which the "see-saw" must transmit. The higher the pitch, the closer together must the teeth be. Within the octave, Sholpo regulates the quantity of the teeth by means of a more or less frequent circulation of the disk, in dependence upon which the combs are photographed on the moving picture film with more or less frequency. Recently, Sholpo has substituted slots for teeth; this adds to his disks greater exactness and practicability. Together with Rimsky-Korsakoff (the composer grandson of the famous Rimsky-Korsakoff), he has recorded on a film a number of items by Rimsky-Korsakoff, and a few new works. Anyone who has heard the "March-Trot"—a short jazz piece played on . . . birds' voices will

Music by Designed Sound

by
V. Solev (Moscow)

never forget it. "March-Trot" is a serious contribution to the wealth of world music.

Timbrograms—Music of the Future.

All those engaged in work on "artificial sound," have until very recently recorded it by means of lines (transverse recording). At Potilikha, in Moscow, there is a man called Tager, who has discovered unexpected opportunities in shadow recording ("intensive," nuance recording).

Tager's strips of shadow correspond to Shorin's "teeth."

By photographing them on a different scale, Yankovsky has obtained a different pitch of sound but in the same timbre as the design taken as the basis. Naturally, he chooses, for the starting point, the most richly sounding note of each instrument.

The fact that Yankovsky's "timbrograms" promise to furnish sound of any pitch with the timbre of the best note of the instrument is of tremendous importance in principle. It is known that the higher the pitch, the poorer is the timbre of any musical instrument. (The extreme upper notes of the piano, for instance, are quite "dry). This phenomenon takes place because the material used in the making of the instrument (wood, copper, etc.) reflects differently in each case sounds of different pitch. Various instruments made of various materials and of various forms possess greater or lesser quantities of fully sounding octaves. The piano sounds well within a big range; other instruments are considerably poorer in good octaves. All depends upon the instrument.

One might say that Yankovsky creates "multiplication instruments" which are not dependent upon any acoustic whims, simply because, once and for all, the best sound is taken as the basis.

This possibility is far more interesting than abstract research for "new sounds," in which up to now the workers in the field of the "designed sound" have been engaged. Regardless of whether it has been a long or a short process, whether it has come easily or has involved a tremendous amount of time, labor, and patience of audiences, the fact remains that during the centuries of its existence, our orchestral practice has chosen the timbres most acceptable to our ears, (just as Oriental practice has chosen its own timbres).

The modern symphony orchestra is very rich in sounds, and it is impossible to discover immediately something utterly different in this line. The point is, that by no means every instrument of the orchestra is in harmonious relations with its neighbors. Orchestra instruments do not represent a finished system; especially important is the fact that the range of possibilities is different in all instruments. These are the gaps that Yankovsky promises to remedy.

Sholpo of Leningrad also is seriously thinking of changing over to the field of Yankovsky's "timbrograms." For they can be utilized on the multiplication film apparatus, as well as for the recording of the paper designs in motion, as has been done by Sholpo.

Musical Horizons.

What does "designed sound" sound like?

It would be wrong to suppose that the very first steps open up possibilities for altogether new timbres. These have not been obtained. Until recently, instrumental technique was groping its way towards new sounds. Nevertheless, experience in the field is colossal.

During the nineteenth century alone there were twelve thousand patents dealing with musical technique. The choosing of new sounds, new timbres, and improvement of the already existing ones has, therefore, been a ceaseless process. If it were possible to get altogether fantastic timbres, they would fail to stir the listeners aesthetically.

But it would be an altogether different matter if we should succeed in getting series of intermediary timbres, for in-

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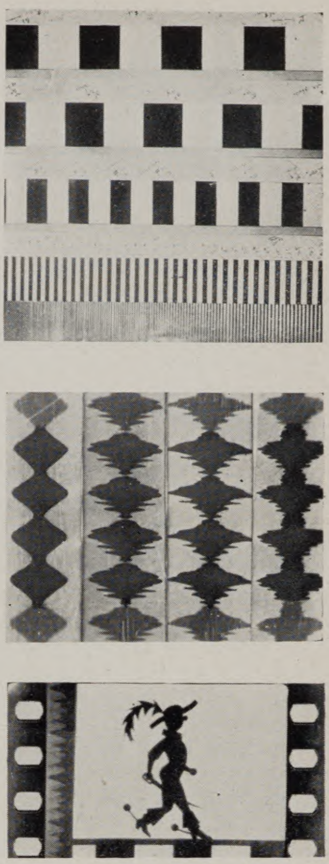


Top: Early attempts to produce "designed sounds." These designs gave a timbre of the "hurdy-gurdy" type—simple and bare.

Center: How the sound of a French Horn arises and continues. The periods appear almost instantaneously and die away with a singing note.
A piano gives a much shorter period.

Bottom: Multiplication film for television ("the March of the Chess Figures") to be broadcast with "artificial sound".

E. Sholpo of Leningrad, sketching the slot-teeth on his discs. These figures are then photographed on the sound path of a moving picture film. It would be truer to speak of "photographic sound" than "designed sound."

stance timbres between those of wood and brass winds, with different sordines. In this case, "designed sound" has justified itself from the very first steps of its existence. Even a few years ago, sounds of the type of different wood wind instruments were obtained. Such intermediary timbres are today often obtained by Voinoff, to say nothing of Sholpo of Leningrad, who has been working by a more subtle method.

The dream of the symphony orchestra reformers, who have in vain struggled for some degree of smoothness of transition between different instrumental groups, may be realized by means of synthetic music, particularly by the music of Yankovsky and Sholpo. The simplicity of the photo-copy method used by Yankovsky, together with the rapidity of Sholpo's methods promise to do very much in this direction.

The dearest dreams of the "automatisators" of music may become a reality. The violin will walk across the viola and the cello directly beyond the double bass. The lowest sounding brass wind instrument, the tuba, will rise above the highest brass wind—the trumpet. Triangles will sing, not ring. The piano, preserving the crystal clearness of its sound, will sound as prolonged as the harmonium, with its sound rising from the most tender pianissimo to colossal force. The flute will go down beyond the bass clarinet. The bassoon piccolo will go up beyond the flute piccolo. There will be smooth modulations from the violin to the clarinet, to the horns, to the percussion. The gaps between the violins, the wood and the brass wind instruments, between the bow, the percussion, and the plucked instruments, and even choruses will be done away with. These groups of instruments are not so far apart in regard to timbres. The "multiplication" orchestra of the future can be clearly foreseen even now, in the form of an unbroken continuation of timbres, from the tenderest flute to the double bass, without any parasitical soundings.

At present there does not exist an instrument which apart from musical sounds, (i. e. those with regular wavelike vibrations) does not produce also sounds of a disorderly, noise like character. The whistling of the winds, the rustling of the violins . . . Violing noises for instance form a relatively large percentage of violin sound.

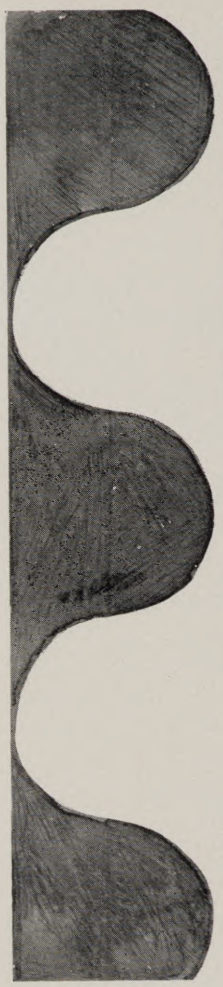
Analysis of phonograms will allow us to overcome this, also. The noise "teeth" might be removed from the phonogram of the given instrument. Later, one might use the phonogram cleared of them.

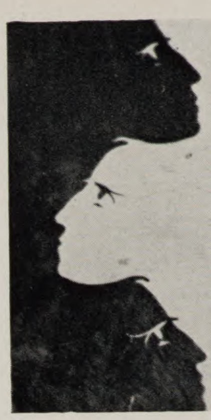
We will get rid of the negative aspects of the sordines which have introduced new noises into the brass instruments since their appearance.

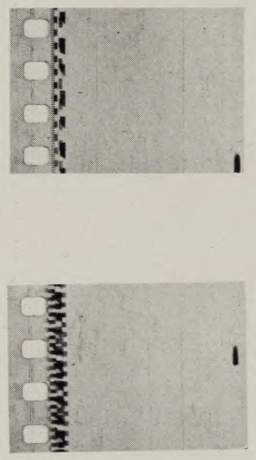
We shall know what it is that distorts to shrieking point the sounds of the cornet-a-pistons and the English horn in its higher registers. These instruments might be introduced into the regular symphony orchestras.

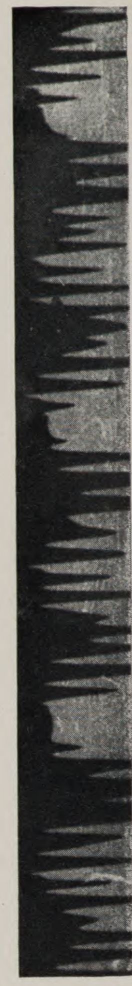
The lower notes of the bass tuba, for instance, have a very poor sound. It has been known for a long time that they are very poor in overtones but nothing could be done about it. Yankovsky has looked at the phonogram of the tuba;—yes, in the lower notes there are only large and infrequent "teeth" and very few little ones. But isn't it possible to draw them or to photograph on a larger scale the picture of the richer middle register notes? Yes, that is what Yankovsky is doing now. The new member of the orchestral polyphony is ready.

A problem of this sort would probably alarm even Prof. Sarnett, the French transformer of musical instrtuments for the radio. It seems as if he does not go beyond the improvement of the transmission of that which the orchestra already possesses. Basic change in the acoustics of the instruments themselves lies beyond his purpose.









Left: It is difficult to analyze a curve of this type into a series of others. It was thought that it would give a complicated sound, but practice did not bear this out. Everything, depends, it seems, on the presence of small "teeth."

Top center: Experiments made by Avraamov and Yankovsky showed that a profile usually sounds like a violincello. The profile is taken in such a way that the black silhouette corresponds to the white one, in accordance with the law of sound recording which says that phases must follow each other alternately.

Lower center: Two sound tracks obtained by photographing Sholpo's discs (each track gives a different timbre of sound).

Right: Natural sound track of a piano on a cinema film. It can clearly be seen how the same group of "teeth" repeat itself at definite intervals (the film moves so rapidly that every sound has time to be recorded in the form of several "periods," making it easier to distinguish its boundaries from those of neighboring sounds.)

The fullfreedom of the technique of interpretation promised by "designed sound," might bring to life a number of instruments, such as harps, which are beginning to become obsolete. Trumpets will play without stops for breath. A fairy like accumulation of "orchestra" tempo might become possible.

By building a chord out of tones of any pitch, it will be possible to create altogether new harmonies, outside the reach of present day instruments.

"Designed sound" also makes it possible to give melody and harmony "glissando" fashion (i. e. sliding up and down, like the howling of the wind). This sliding of the vocal tone is frequently used in singing, especially in Gypsy and Persian singing. The Hawaiian guitar has something of the kind. "Designed sound" offers the possibility of such a sound to any other instrument. (This has been done, by

Continued on page 154

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PANCHROMATIC NEGATIVE

RAPID PROCESSING METHODS

Continued from page 145

film should be rinsed for about 5 seconds in an acid stop bath, and fixed until it has cleared in the F-5 fixing bath.

The proper development time at any temperature can be determined from last month's table, if the time which gives the desired degree of development at 65°F. is known. Although the temperature coefficients of the other developers vary slightly, this table is sufficiently accurate for use with any of the developers mentioned in this paper, except the two bath developer for which the times need not be changed over the temperature range form 65° to 85°F.

SUMMARY

In press photography, it is often necessary to obtain a print from an exposed negative as quickly as possible. The time required by each step in this process must be considered in order to obtain as great a reduction in the total time as possible.

A rapid hardening two bath developer is very well suited for these conditions, because of the following properties:

(a) It can be used at temperatures from 65° to 85°F.

(b) It develops and hardens the film in 2 minutes.

(c) Small errors in timing have very little effect on the development.

(d) The solutions are stable and not very subject to aerial oxidation.

This developer is best followed by the F-5 fixing bath, but if desired, an ultra rapid fixing bath, such as the F-24 with 2½ per cent of ammonium chloride added, may be used.

Other developers which are particularly suitable for special circumstances are:

1. For processing normally exposed negatives at room temperatures from 65° to 80°F., use D-72 full strength, rinse for a few seconds in the SB-1 acid stop bath, and fix in the F-23 chrome alum hardening fixing bath.

2. For rapid development at temperatures up to 90°F., use the D-9 developer with the addition of formalin and phenosafranine, rinse in water or an acid stop bath, and fix in the F-5 fixing bath.

3. For maximum emulsion speed (maximum shadow detail), regardless of contrast, develop in D-82 at 65°F. for about 8 minutes.

4. For maximum emulsion speed ob-

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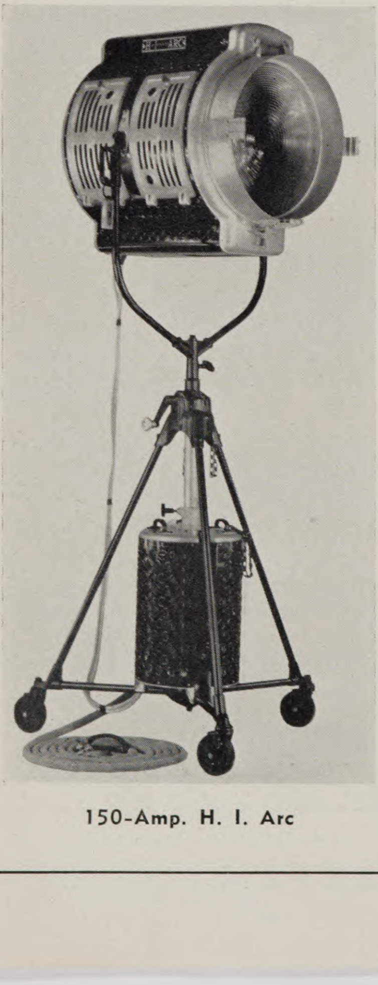

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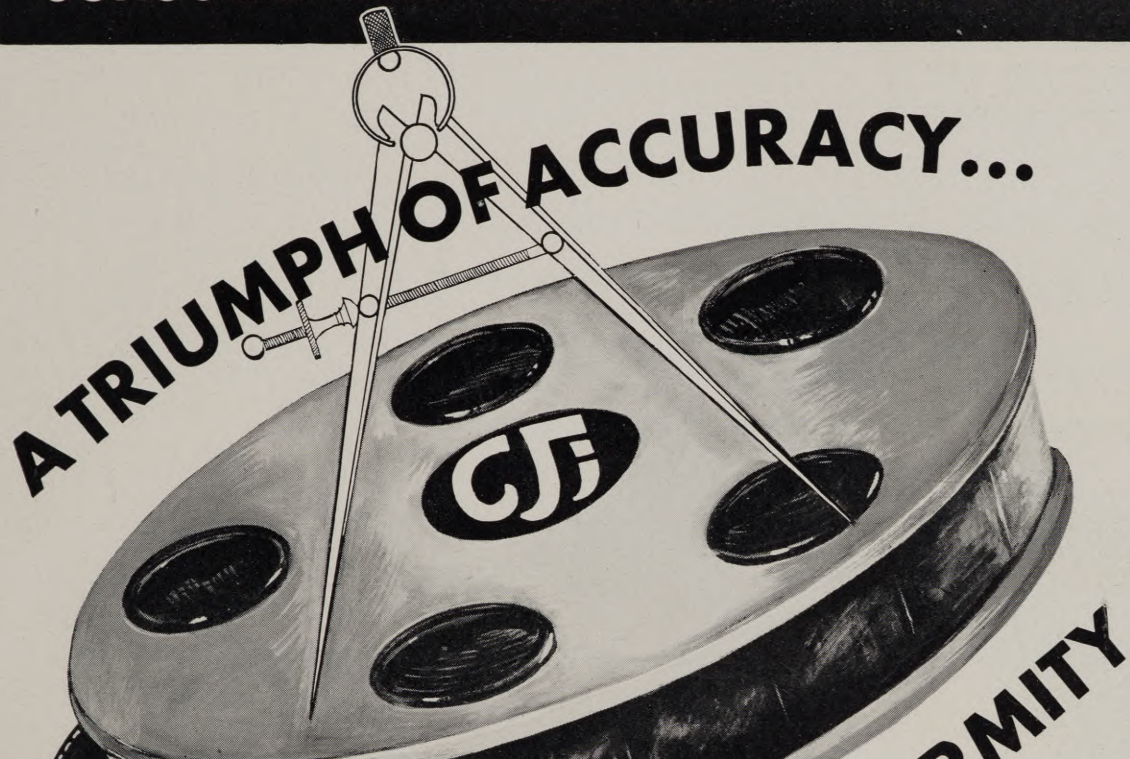

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tainable in a short time, add 10 grams per liter more sodium hydroxide to the D-82 and develop at 65°F. for the time available, up to 3 minutes. If the available time is less than 30 seconds, add ammonia to this developer.

5. If maximum highlight density is required regardless of time of development or shadow detail, use D-8, D-9, or D-82 plus caustic at 65°F. for the time shown in Table II.

6. Provided maximum shadow detail is not required, for maximum gamma in a minimum time, use D-8 at 65°F.

The time required for drying may be saved by printing from the wet negative, supported in a special holder, or held in a thin liquid cell containing water or fixing bath.

When many prints must be made, the negative should be protected against overheating by providing forced ventilation of the printer lamphouse and by the use of a water cell or heat absorbing glass before the lamp.

Hal Mohr, A.S.C., Captures Academy Award

Continued from page 143

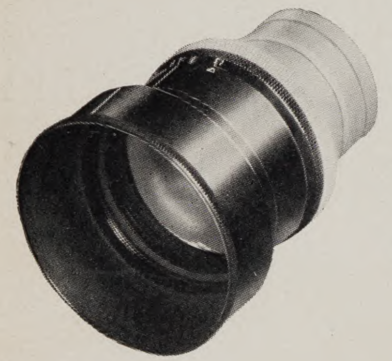
No award was made, however, in Class I, (Academy Statuette and Placque), but two certificates of merit were awarded in Class II. These were given to the Agfa-Ansco Corp., for the development of the Agfa Infra-Red film which, in the opinion of the judges, "has resulted in a significant improvement in photographic quality and has particularly increased the facility with which transparency and effect shots are made." For the development of the Pola-Screen, the Eastman Kodak Co. received an award because the Pola-Screen "helps to remove certain limitations in photography and is . . . an important contribution to the art and science of motion picture production."

Seven awards were made in Class III, consisting of honorable mention in the report of the board of judges. These went to the Metro-Goldwyn-Mayer Studio for the development of anti-directional film-development, the practical application of which "constitutes a meritorious advance in the laboratory field"; to the Mole-Richardson Co., for their development of "Solarspot" spotlamps, reported "a valuable contribution to the industry in . . . a light unit essentially for motion picture photography, utilizing improved optical design and construction." Another award went to Paramount Productions, Inc., for the design and construction of the Paramount Transparency Air Turbine Developing Machine which "marks a notably progressive step in the processing of motion picture film." In the non-photographic field, these awards were given to William A. Mueller of Warner Bros.-First National Studios for his method of dubbing, in which the level of the dialogue automatically controls the level of accompanying music and sound-effects; to Douglas Shearer, A.S.C., and the Metro-Goldwyn-Mayer Sound department for their automatic control system for cameras and sound-recording machines and auxiliary stage equipment; to Electrical Research Products, Inc., for study and development of equipment to analyze and measure flutter resulting from the travel of film through the mechanisms used in the recording and reproduction of sound; and to Maj. Nathan Levinson, Director of Sound Recording

Capt. John D. Craig takes an

F 1.3 TAYLOR-HOBSON-COOKE

to the decks of the LUSITANIA



To get perfect pictures on the murky bottom of the Atlantic, Capt. Craig will use an F 1.3 T-H-C Speed Panchro lens in his Bell & Howell Eyemo when, with salvagers, he descends to the deck of the Lusitania this summer. For full information and prices on this fast, fully corrected lens, address

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at Warner Bros.-First National Studios for the method of inter-cutting variable density and variable areas sound tracks to secure increase in the effective volume range of sound recorded for motion pictures. Several of these achievements have already been described in these pages to readers of the American Cinematographer, and descriptions of the others are planned for the near future.

Problems of Controlling Correct Photographic Reproduction

Continued from page 142

pressing green-yellow radiation. The spectral transmission curve of such a filter is closest in shape to the spectral sensitivity curve of present Panchromatic supersensitive emulsions, both showing their maximum peaks in red and blue.

Viewing an object through this type of filter will enable one to visually anticipate the effect of the spectral reflection characteristics of the object upon the negative material before exposure. Thus we are able to construct visually for any object what was previously referred to and explained as the photicity curve.

Both types of viewing filters discussed are helpful in many ways for each problem, that of "Orthochromatic reproduction" and deliberately distorted reproduction.

An interesting field in which the application of photographic distortion plays an important part is in the photographing of so-called "effect shots". This includes the many different methods of composite trick photography wherein the combination of foreground action and background is achieved by utilizing the possibilities of color enhancing and depressing filters.

Also, in this category belong photographing through haze and photographically producing night effects made in the daytime. While both of these tasks can be accomplished quite successfully by using Panchromatic negative emulsions in combination with red filters, there are also available special emulsions which in addition to the blue sensitivity inherent to silver bromide, are sensitized for deep red and infra red radiation, and thus make effects possible which cannot be obtained otherwise.

The next article will conclude the se-

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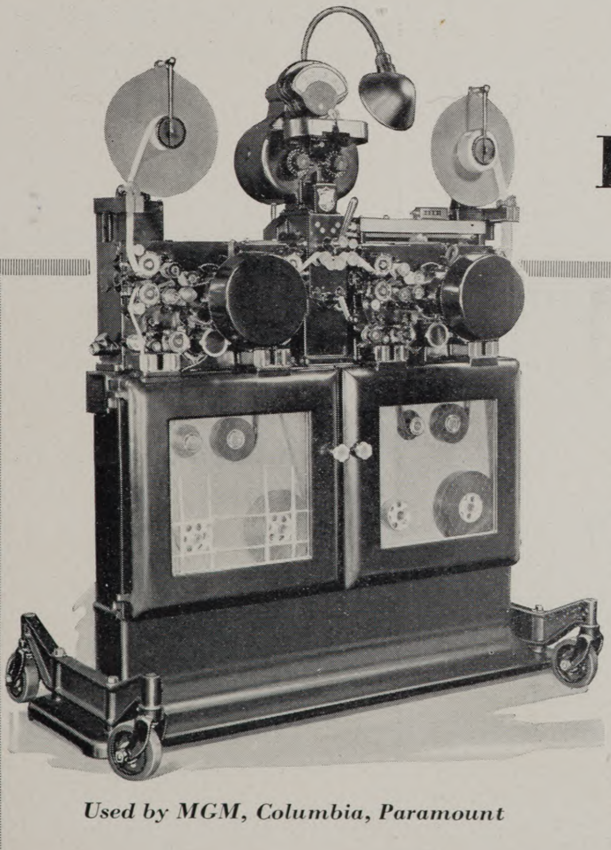

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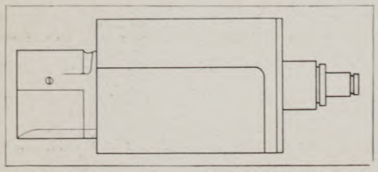

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ries dealing with Problems of Controlling Correct Photographic Reproduction.

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Absolute Music by Designed Sound

Continued from page 148

the way, in the "March-Trot" of Rimsky-Korsakoff and Sholpo).

All the possibilities of quarter tone music, of the performance of music of any nationality in its original form, etc., of course remain open.

Music acquires unheard-of force of action.

Furthermore, a chord of more than ten sounds per second can be heard distinctly only by very few musicians possessing an absolute ear. Very well, then! Let us turn it into a new timbre. The regular timbre complex (the basic tone plus the over-tones) reproduces in the miniature the full chord, not only statically but also dynamically. (At each of its notes, the over-tones repeat a certain musical phrase). Here is, therefore, a new path towards purely organic experimentation in search of new timbres.

One more thing. Music can be determined in regard to five relationships: pitch, loudness, technique of performance, timbre and polyphony. In regard to the last relationship, "designed sound" will apparently be greatly helped by constantly improving the technique of the "re-recording" of sounds. By means of special apparatus for "re-recordings," done purely electrically without any acoustic hindrances, all the sounds are re-recorded upon one phonogram of normal width.

Some day perhaps, by means of re-recording, "designed sound" will enter into the regular symphony orchestra. It might enter the orchestra either as an unusual "soloist," or as a modest incognito, instead of some instrument which in its normal state can not fulfill the desires of the composer (see the use of harps in Wagner's music).

"Designed sound" permits combinations of any timbre with any method of producing the sound. The piano will be able to sing; the flute will ring like the plucked instruments. . . . Mr. Disney, can you imagine mewing in the voice of the

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dog, or barking in the voice of the cat? Can you imagine the tune of a French chansonette sung in the timbre of a roaring lion? "Synthetic" singing (without words) is not far off.

As far as speech imitation is concerned, its realization will involve probably more time. Even in regular sound recording, music, thus far, gives better results than speech. The choirs of the angels need not fear unemployment as yet. For the multiplication film, however, there is a possibility of smooth, unnoticeable transition from the timbre of the human voice into a melody of musically fixed tones, from musical tones into noise-like sounds and vice versa, as a combination of music and noise. Finally some voices, such as the natural barking of the dog, will be reproduced in the near future. The dog's voice vibrates an octave that makes the "bark."

It is curious that work on the analysis of the phonogram has originated in the Soviet Union not only in the fields of cinema or the radio (where a small group of people has also been working on "designed sound") but in purely musical circles. The State Music Publishing House has recently brought out in book form a posthumous work by Prof. Rabotnov—"A Treatise on the Investigation of Phonograms," dealing with vocal parts in particular. The work is devoted to the analysis of the disk records for the phonograph. Prof. Rabotnov analyzes the forms and conditions of the origin of the little furrows characteristic of the vocal parts. Prof. Rabotnov has accomplished that, of which once upon a time, Mogoli-Nagi, the photo-innovator, dreamt.

From the literature on the subject, it is known that researches dealing with vocal parts were carried on in England a few years ago by Mr. Humphreys for the practical purpose of adding sound to films. Unfortunately, however, results of his work, have not as yet been published.

Most difficult to reproduce is the human voice with its sounds passing from one into another, and the singing quality of the violin. The striking of the bow upon the strings calls forth such a number of overtones as is impossible to produce in some other mechanical fashion.

Where can "designed sound" be heard? It is included occasionally into the broadcasts of the Leningrad radio-stations. Special little films with "designed sound" have just been made for Soviet television. The experimental radio-station in Moscow, which after midnight (Moscow time) transmits occasional television programs, is soon to include in its programs small multiplication films accompanied by "designed sound". The first number is the "March of the Chess Figures" with music from Carmen.

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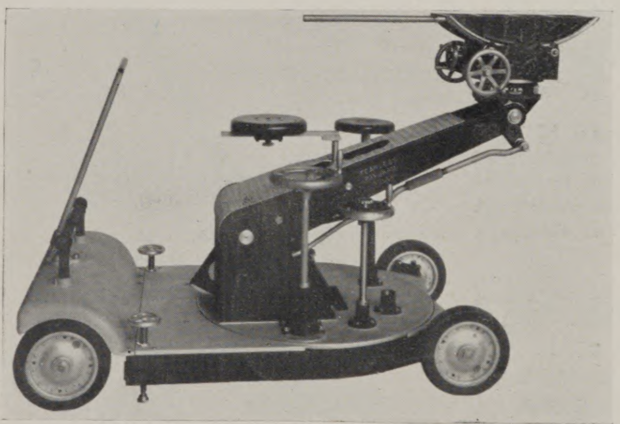

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Premier Changes

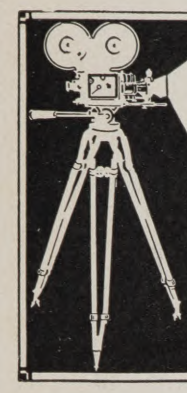
Through negotiations consummated last week the Premier Motion Picture Equipment Company sold to the World Motion Picture Equipment Corp. all the rights and contracts with license to manufacture and distribute the Gwynee "One Man Laboratory" motion picture developing machine.

This new company has located at 1611 Cosmo Street, Hollywood, where it is establishing full laboratory facilities for actual practice and so as to more thoroughly demonstrate their "One Man Laboratory." The new quarters are equipped with a regular dark room, printing facilities and all the modern methods of processing film.

Mole-Richardson "Ultra H. I. Arc."

A radically new high intensity arc spotlight, known as the "Ultra H. I. Arc," is announced this month by Mole-Richardson, Inc. Embodying the same exclusive "morinc-lens" optical system that won the (incandescent) Solarspot lamps immediate popularity, the "Ultra H. I. Arc" is a 150-Ampere High Intensity rotary carbon arc spotlamp. In construction and appearance it is closely similar to its companion unit, the 120-Ampere "H. I. Arc". Like the "H. I. Arc", the new unit eliminates the uneven light distribution common to all reflector-arc spotlamps and delivers vastly more light than is possible with lamps using conventional types of condensing-lens optics. The projected beam from the new lamp is devoid of "hot rings" "dark centers," and element-shadows. The new unit's range of beam adjustments is from a tight spot-beam of less than 10° to a flooded spread of over 48°. At all focal adjustments greater than 18° the "Ultra H. I. Arc" throws a beam of much greater intensity than that of a comparably powered 36" Sun Arc.

The steadiness, silence and color-distribution of the new lamp mark definite improvements over previous types. Over a twenty-minute burning period, the intensity of the "Ultra H. I. Arc's" light will not vary plus-or-minus 5%, while sound experts have pronounced it possible to use the lamp within ten feet of the microphone. While the new lamp was developed primarily for Technicolor photography, and received its first practical use on "Dancing Pirate," it is, like its predecessor the "H. I. Arc," finding extensive application on black-and-white sets where light-effects, strong source-lighting, etc., call for a high-powered, modern arc.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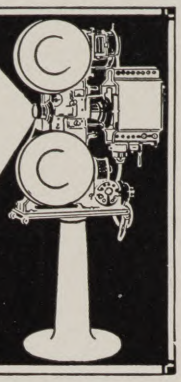

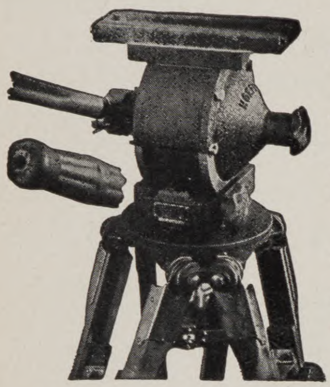
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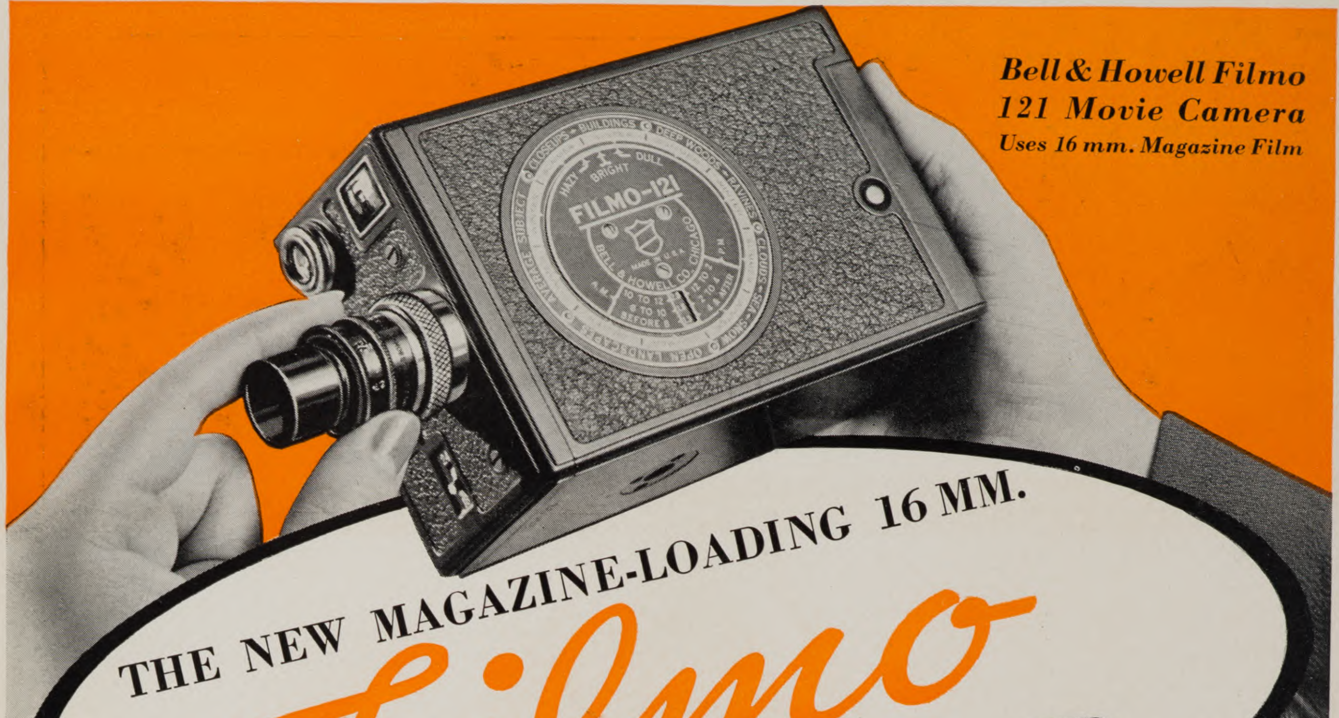

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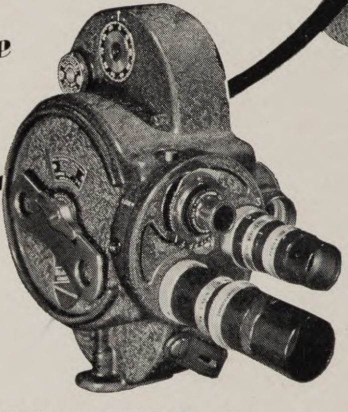

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Filmo 70-D, 16 mm.

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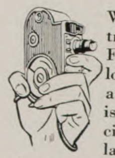
This is the "master of all personal movie cameras"! Its three-lens turret, variable viewfinder, seven speeds, and numerous exclusive Bell & Howell features make it the finest and most versatile of 16 mm. cameras. Cooke F 2.7 lens, interchangeable with seven others from 1-inch F 1.5 to 6-inch F 5.5.

Filmo 70-E, 16 mm.

Identical in appearance and quality to Filmo 70-D but without the lens turret and the variable viewfinder. Operates at four speeds and is, like Model 70-D, unequaled for color or black-and-white movie-making.

Filmo 8's



Where economy of operation or extreme portability is desired, the new FILMO 8's, using the new narrow, low-cost 8 mm. film costing as little as $1.45 a roll, including processing, is quite popular. This Bell & Howell cinematographic triumph is bringing large, life-like, high quality motion pictures to movie lovers at new low cost.

AMATEUR MOVIES

APRIL,
1936

this issue

A Continuity for Easter
Explaining the Laws of Symbolism
Simple Filtering Is Best
Filming the Quintuplets
Editing Is Really An Art
. . . and other features

25c

PLENACHROME FOR SPRING

SPRING heralds the opening of a new deluge of advice to motion picture enthusiasts.

From all sides you are admonished as to what pictures you should take, how and when to take them. You are showered with advice . . . helpful, of course, but . . . don't lose sight of the fundamental fact that the quality of your movies is governed largely *by the film you use!* . . . And since spring calls for an ideal all-around outdoor film . . . a wise choice is Agfa 16MM Fine-Grain Plenachrome Reversible Film.

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Your dealer has Agfa 16MM Fine-Grain Plenachrome Reversible Film. It is available in 100-foot rolls at $4.50, and in 50-foot rolls at $2.75 . . . including processing and return postage. Made by Agfa Ansco Corporation in Binghamton, N. Y.

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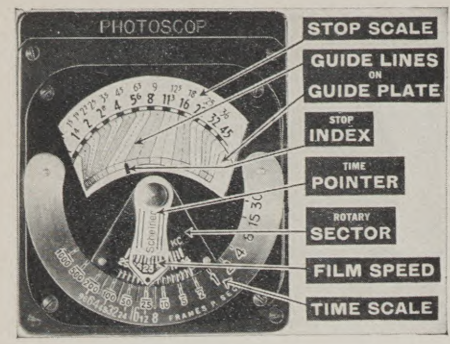

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The meter reads INSTANTLY AND DIRECTLY. By pre-setting to the film speed and shutter time (or frames-per-second of cine cameras) most generally used, the PHOTOSCOP instantly indicates the proper stop to be used as soon as it is pointed at the subject. The PHOTOSCOP reads directly, without resetting, scale shifting or calculation. One simple movement of the rotary sector gives the less frequently required exposure time for any predetermined stop; or for a different film speed.

Range:

The time scale is calibrated from 30 seconds to 1/1000 second and from 8 to 96 frames-per-second for cine cameras. Film speeds from 14 to 29 are included. The stop scales have all English and Continental stops from f1 to f45. The new PHOTOSCOP will function under every adequate condition of daylight or artificial light in which the vast majority of pictures are made, with all popular types of amateur films from the slowest to the most ultra sensitive.

Reading Comfort:

The meter is held breast high; aimed as naturally as pointing your finger, and read by looking DOWN on the scale in the natural reading position. There is no inconvenience to those who wear glasses.

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The meter is small. Including the leather case it measures only 1 3/16"x2⅞"x3" overall.

The Photo-Cell:

The "power-plant" of the new Universal PHOTOSCOP Exposure Meter is a metal, light-operated current generator of rugged construction and a very long, almost unlimited life. The Electrocells in the new PHOTOSCOP are pre-aged during production, hence their perfect stability. The new "power-plant" is ULTRA-SENSITIVE and has an unparalleled output. The cell generates up to 0.6 volt and delivers about 480 micro-amperes per lumen. It responds to all colors and being without appreciable time lag, responds instantly to rapid light fluctations.

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The new Universal PHOTOSCOP is supplied in a sturdy, Ever-ready leather case, from which it need never be removed. A neck cord is supplied, attached to the meter.

Mechanical Construction:

The new PHOTOSCOP is well constructed and splendidly designed throughout. There are no loose, rubbing or protruding parts to twist, bind or cause difficulty in scale setting or operation.

Service:

A service department for exposure information and a complete repair depot are maintained at the office of the distributors in New York City.

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AMATEUR MOVIE SECTION

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PROFESSIONAL Criticism of the Amateur picture is a part of the service offered by the AMERICAN CINEMATOGRAPHER. Many are not aware of this. Hundreds of pictures have been reviewed this past year by members of the American Society of Cinematographers for the Amateur.

Next Month . . .

● A timely article on Kodachrome. And, of course, a good continuity. One of the prominent directors of photography of Hollywood will give you some technical information. J. B. Hall will continue his discussions on composition.

A Continuity for Easter

by

Barry Staley

EASTER—with its chicks and bunnies and bright-hued eggs! Surely this year you will film a record of the family's Easter activities. By capturing the spirit and events incidental to the day, you will make a valued addition to your celluloid domestic album.

The following outline scenario will also give you exercise in operating your camera to catch natural rather than posed or directed action. Particularly with children, this unhampered flow of natural gesture, expression and motion has priceless warmth and charm. It is not always easy to get, but is a treasured possession when finally unfolded on the screen.

MAIN TIITLE: OUR EASTER PARADE, 1936.

SCENE 1: CLOSE-UP of Junior having his ear roundly soaped and washed.

SCENE 2: CLOSE-UP of Junior having his hair combed and nicely slicked down.

SCENE 3: CLOSE-UP of Daughter's stockinged feet only. She draws on her new shoes.

SCENE 4: CLOSE-UP of Daughter's head only. Her curls are being brushed tight.

SCENE 5: CLOSE-UP of Mother opening a hat box. She lifts out her new Easter hat.

SCENE 6: CLOSE-UP of Mother seated at dressing table. She puts on the hat, adjusts it to the right angle, admires the effect.

SCENE 7: CLOSE-UP of Father's hands folding a new clean handkerchief.

SCENE 8: CLOSE-UP of Father patting folded handkerchief into breast pocket of his coat.

SCENE 9: MEDIUM SHOT of the family front door. It is closed but it opens and the family step out through it one by one arrayed in their full Easter splendor.

SCENE 10: MEDIUM SHOT of the entire family as they reach the sidewalk and join the Easter parade to church. FADE OUT.

SCENE 11: FADE IN on SUB-TITLE: EASTER RABBIT AND THE EGG HUNT.

SCENE 12: LONG SHOT of the back yard. A white Easter bunny is scampering about the yard.

SCENE 13: MEDIUM SHOT of the rabbit hopping over the lawn.

SCENE 14: CLOSE-UP of the rabbit munching at a blade of grass. Note: These rabbits are so tame you can with reasonable patience catch him sitting up nibbling at grass and wriggling his ears in manifest enjoyment.

SCENE 15: MEDIUM SHOT of the rabbit. The children run in and after more or less pursuit catch him.

SCENE 16: CLOSE-UP of Junior holding the rabbit, stroking the long ears.

SCENE 17: MEDIUM SHOT as Mother enters the group about the rabbit. She gestures to various points of the yard. Children dance away as the Egg Hunt is on.

SCENES 18 to 25: CLOSE and MEDIUM SHOTS of the children, their faces beaming with happy delight, as they scurry about the yard in quest of the hidden Easter eggs. Don't pose or rehearse these shots. Take a central position with your camera and catch the children's own natural expressions and actions. They have their own inimitable ways and personalities.

SCENE 26: CLOSE-UP of a colored Easter egg in its little grass nest hidden in a hedge.

SCENE 27: MEDIUM SHOT of Junior, hot on the trail, nearing the hedge.

SCENE 28: CLOSE SHOT of Junior as he spies the hidden treasure and proceeds to annex it.

SCENE 29: CLOSE-UP of the hidden Easter egg. Junior's hand comes in and takes it away.

SCENE 30: MEDIUM SHOT of Junior as he joyously announces his find and clasping it proudly displays it for general approval.

SCENE 31: CLOSE SHOT of Junior, firmly clutching his Easter egg, as he valiantly carries on the hunt.

SCENES 32 to 40: CLOSE and MEDIUM SHOTS from varying angles of the children pursuing the hunt and discovering the hidden Easter eggs. The scampering Easter rabbit is frequently in evidence.

SCENE 41: CLOSE-UP. On the children's table, taken to the yard, is an Easter basket now piled high with Easter eggs. The tiny hands of Junior and Daughter come in and add the final eggs to the colorful collection.

SCENE 42: MEDIUM SHOT of the children drawing chairs to the table and hopping into them.

SCENE 43: CLOSE SHOT of the children at the table, cracking the shells and removing the outer covering from the hard-boiled eggs.

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Explaining the Laws of "Symbolism"

by

Max Liszt*

*Director of "Lives Wasted,"
a "New Film Group" Studios Picture

FROM THE TIME that "man" first began to think he has always tried to present his surroundings by words and pictures which were a reproduction not only of what he saw but also of what he thought. What he saw was quite easy to describe, but what "man" thought was often quite difficult to express and he had to make comparisons, had to call in things that he had seen previously in order to describe his thoughts, and "Symbolism" (the art of describing one thing with the aid of another, sometimes entirely foreign, substance) was born.

Through the ages "man" has developed "symbolism" until in this present day "symbolism" has been developed to such an extent that it tends to become over-developed and therefore confusing and defeating its purpose.

This is very much true to a very great extent in our present-day motion pictures, and well for the reason that the users of "symbolism" in their pictures try to out-symbolize one another and disregard the laws of this means of expression. They try to beat one another in very much the same way that the studio publicity man tries to beat his rival studio in the use of superlatives in his description of a picture, disregarding entirely the picture's contents and merely concentrating his brains on the invention of still greater superlatives. This, of course, defeats its own purpose.

The same applies to the directors who have done a good thing to death by their hit-or-miss methods, disregarding entirely the laws of "symbolism" until now many have come to look on this phase of picture-telling as something "arty" that the public does not appreciate or understand anyway. This is a very foolish stand to take inasmuch as nothing is used so much in every day life as "symbolism," inasmuch as this form of expressing one's thoughts is understandable and normal to every person.

But, as with everything else, one has to know on what fundamental laws picture-symbolism is based, and failing to have this knowledge at his command naturally one is apt to commit mistakes in its application and thereby defeat its purpose.

The very first law is: Symbolism must be universally understood. By that I mean that it must be as clear to Americans as to Chinese, Eskimos, Negroes, etc. For example: In symbolizing the death of a relative or dear friend we wear a black ribbon on our coat sleeve; but in China the person wears a white ribbon inasmuch as there white is the color of mourning. If in our picture we would symbolize death by the color black this would not be understandable to the Chinese and its significance would be lost to them and therefore the picture would suffer in its clearness of story telling. In order to assure our picture the appreciation of the world's audiences we must employ a "symbolism" that is universally understood as, for example, a wilted flower.

But law number 2 decrees that: Symbolism must be kept in the mood of the sequence. By this is meant that in symbolizing the death of a big, strong man it is unforgivable to employ a little wilted flower inasmuch as the "mood" of "big strong man" is antagonistic to the "mood" of "little wilted flower." Therefore we cannot use a flower in this case, but we can use a sturdy oak tree broken in two. In this the mood of the tree is akin to that of the man inasmuch as both are big and strong and the spectator will readily accept this and recognize it as it is in keeping with his mental picture of the big man he saw on the screen before.

The third law demands that: Symbolism must utilize an object familiar to the locale of the sequence. This is a very important law and one that is most broken. If our man (see 2) is a farmer, the symbolism of the tree would be correct as trees are familiar objects in the locale of the man; but if the man were an office worker in a big city of buildings the tree-symbolism could not be used very well inasmuch as the tree would be foreign to the locale of the office (buildings) in the city and therefore the tree cannot be used in this instance, but we must use an object that is familiar to the city-locale as for instance in this case would be a broken and burned-out pipe.

This brings us to law number 4 which decrees that: Symbolism must be recognized and understood at first glance. Meaning that the audience must readily understand the "symbolism" used and not have to think for a while before it catches on to the meaning, and this for a very important reason. Suppose it would take the audience ten seconds to get the meaning of the "symbolism" used on the screen. During that time fifteen feet of film has passed through the projector, fifteen feet of story-telling (action and dialogue) have passed and, may be, a very important point in the story has been told, but the audience is still thinking about the "symbolism" and therefore unconsciously pays only little attention to the screen so that when they finally do get the meaning of the "symbolism" and their mind is ready again to follow the picture they have lost the point that was brought out during those fifteen feet and are therefore unable to enjoy the development of the picture because a link is missing in their mind. This irritates the audience and the result is that, when asked his opinion regarding the picture the spectator will give an adverse verdict which will tend to discourage the questioner.

If the applied "symbolism" does not obey these four laws it is best to kick it out of the picture.

Let us analyze the following "symbolism" used in a picture here in Hollywood some time ago. The scene was as follows: Two men are seated at a table in a room which is lighted by an electric bulb suspended on a wire from the ceiling. They are drinking wine poured into glasses by one of the men. Suddenly a fight ensues between the two. During the fight the pourer of the wine is stabbed and the other man jumps back, now standing against the wall with his back while the stabbed man is dying.

In order to symbolize the dying of the man the director did as follows: The burning electric bulb on the wire from the ceiling was swung pendulum-wise, causing the observer's (not the dying man) face to be alternately lit up and plunged into darkness. The swinging slowly decreased until finally the burning bulb hung motionless from the ceiling.

This "symbolism" was poorly chosen and incomplete, for the following reason: It did not obey all four laws, and "symbolism" must do that in order to be successful. It broke

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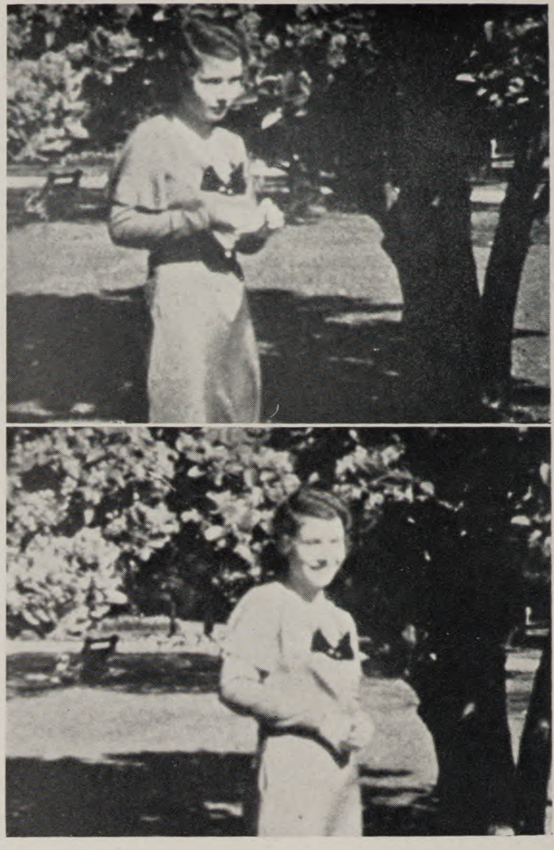
The Simplest Filtering Is the Best

by
William Stull, A.S.C.



At top: Girl with red dress, super film, no filter. Bottom: Same, but using 25-A filter.

A CINEMATOGRAPHER'S assortment of filters should be the product, not of accumulation, but of elimination. The really important thing about filtering isn't how many filters you have, but how intelligently you use them. As a rule, the fewer you have, the more wisely you learn to use them. The Wratten filter-catalogue lists well over a hundred different filters; and I have known professionals who packed over 200 filters in their accessory cases: but when it comes down to practical picture-making, even the owners of these imposing filter-kits find that they can meet the requirements of almost any imaginable scene with a set of but three or four simple filters.

The first step in simplifying the filter problem is fitting your filters to the film you use. If you use Orthochromatic or Plenachrome films, you won't need the filters made to use on Panchromatic materials. In the same way, if you use either regular or Super Pan, the filters made for Ortho will be of little or no value. If you use Super Pan, the film itself will eliminate the need for some of the lighter filters you would use with regular Pan, while for heavier filterations, you will need filters heavier than those used on ordinary Pan. In any case, three filters, or perhaps four, will give you every degree of correction you'd normally want.

Let's say you use Ortho: this type of emulsion begins to grow blind somewhere between the green and the yellow parts of the spectrum. (Plenachrome pushes this limit farther through the yellow toward the orange and orange-red, but it is still in the orthochromatic category.) So all you'll need will be yellow filters; the orange and red ones would be useless. Therefore your filters should be yellow, and to give the different degrees of filtering you want, they should be of varying densities. The best filters for use with Ortho, then, are the K-1, which is a light yellow; the K-2, a medium yellow; and the K-3, a deep yellow. They will give you a light, an intermediate, and a heavy correction.

If you use regular Pan, you have a film which, unlike Ortho, is quite sensitive to the red end of the spectrum. Accordingly, you will need three types of filters if you want a full range of filter effects: a yellow filter, for mild correction; a yellow-orange one, for the intermediate effects; and a red one for heavily over-corrected shots. Probably the best trio for this type of film would be the K-2, for the mildly filtered shots; the G, for intermediate effects; and one of the red filters—23-A or 25-A, according to your taste—for the heaviest corrections.

Supersensitive Pan begins by giving you a film which incorporates a correction approximately equal to that of the K-2 on ordinary Pan, so you will have to move several steps down the line. The K-3 is a good starting-point; the ideal intermediate filter is again the G; and for the heavier over-corrections, you can choose between the 25-A filter and the 29-F—the latter only if you want the very heaviest over-corrected effects.

Now, just what do we mean by these terms "mild correction," "intermediate correction," and "over-correction"? Simply this: that no type of film yet used has seen colors in exactly the same scale of brightnesses that the eye does. Therefore, we "correct" the film's rendition of the scene with filters which alter the way it sees—and reproduces—the colors. A mild correction will improve things generally, though not, as a rule, making things reproduce in black-and-white in entirely the same relative values we see. An intermediate correction would bring things just about to the relative brightnesses we see—possibly overdoing it a bit. And over-correction simply means that the filter exaggerates things, making the film reproduce things far differently from the way we see them, though in a way that may be highly effective as a picture.

In landscape scenes, our correction has chiefly to do with making the scenery, the sky and the clouds stand out from each other, though actually, filter-correction has an important bearing on the way the various greens of foliage, etc., appear on the screen, as well. Disregarding the latter, however, with most of the familiar types of film the blue sky photographs pretty light—a light gray, or even white, depending on the weather and the type of film used. Against this background, the white clouds lose themselves pretty completely. Often, too, the all but imperceptible atmospheric haze will screen the distance, and we will have no

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Editing Is Really An Art

by
J. Belmar Hall,
Instructor Cinematography, U.S.C.

THERE IS ALWAYS a definite reason or purpose that binds all Art Forms together into harmony, and the cinematographer must know in advance how his shots are going to fit into the finished film. The proper balancing of all the elements that have gone into the picture will result in having the rhythmical harmony that takes the picture out of the commonplace.

The problem of the designer is to relate forms into space, some of which are static and others that are mobile. The standard of art depends largely upon the image-film of our eye and the method in which we express it in one art form or another. The cinema being the most mobile art form, requires a greater sense of timing than any other art form. The lighting changes from one scene to another compel the editor of cinema to consider lines, words, and music into a whole. The action must always leave the observer with the feeling of perpetual motion, that each scene flows into a prefect rhythm.

There is always a definite reason or purpose which binds together a series of thoughts or events. Any avoidance of this will create a jumble of scenes and their relation to one another will be lost. The cinema unites thought and expression so that the story being told is in complete continuity.

The many methods that proper timing is arrived at depend entirely upon the editor, who has the many devices such as the lap-dissolve, fade, (in or out), the wipe, or the simple cut-back. If the transitions are smooth the timing is smooth, thus bringing about the perfect continuity.

Editing does not mean the patching of sequences together as they were shot because the exact amount of footage down to the last frame is important. If it were otherwise a film would be only a series of shots, arranged together and would not have unity. If we wish to link together two different views of the same shot we must make them proceed logically out of one another

We introduce a man sleeping on the ground shot as a semi-close-up; suppose the action calls for some noise that awakens the man, a bird in the tree, then we cut back to the man's head as a close-up. If the bird was shot in telephoto it would be wrong. The reason is that the man has been seen as a large figure and that image is impressed on our minds so that the bird would lose its meaning, and the size relations would be too great. The right way to make this sequence would be to shoot a "cut-in" shot of a tree and in that way we have forgotten the size of the man, the tree would be impressed upon our minds and the natural thing to find in the next shot would be the bird on the limb. This will give us time to change our mind-image of the relationship of the man and bird without slowing up the action between the cut-in shot and the movement would be smooth and continuous.

In determining the correct "tempo" of one shot to another, one must always remember his audience's reaction. Hold the shot on the screen just long enough to receive the impression of its meaning but not long enough to analyze it consciously. We often see this on the screen and wonder why it is boring and artificial. Care should be taken not to overemphasize inanimate shots. The close-up is the best medium of the screen and the amateur is the one who leaves it cut the most.

Most amateurs do their own cutting and editing, so the control is in one hand, which is as it should be, but most times the script has not been prepared carefully. Each shot must be thought out before shooting, the exact number of feet each scene will have, the angle of the camera, the long shot, (this is to establish locale), the lens as an independent observer, the lens as the eye of an actor, panning, speed of the camera, (this is for any change other than normal), the fade-in or out, etc. The best fade is the chemical fade as the exact length can be determined to the very frame, which will give smoother rhythm.

The dissolve has to be detailed as to length. Dissolves slow the tempo and cutting is sometimes better. Wipes can be used to quicken action of one scene to another. Masking is very important, as are all other effects for proper timing and continuity. Montage, or mounting is thought out before the shot is made, the cinematographer must be able to translate words in the script into picture-images so that he will at all times know how they fit in. The next step is the proper selection of locations as they fit into the composition for their story-telling quality. Composition is the most important thing in visual art and if the action is bad at times the composition will save the shot.

Unity is the very life of cinema. Each sequence is related to one another. The tonal values that are in the photography will be lost if the cutting is jerky, the proper timing of all camera tricks must be only for their importance to the story, otherwise fades will be too long or short; dissolves that are not timed properly will be meaningless. When there is a "pan" shot it must never be cut in to some scene where the action preceding has been moving in the opposite direction.

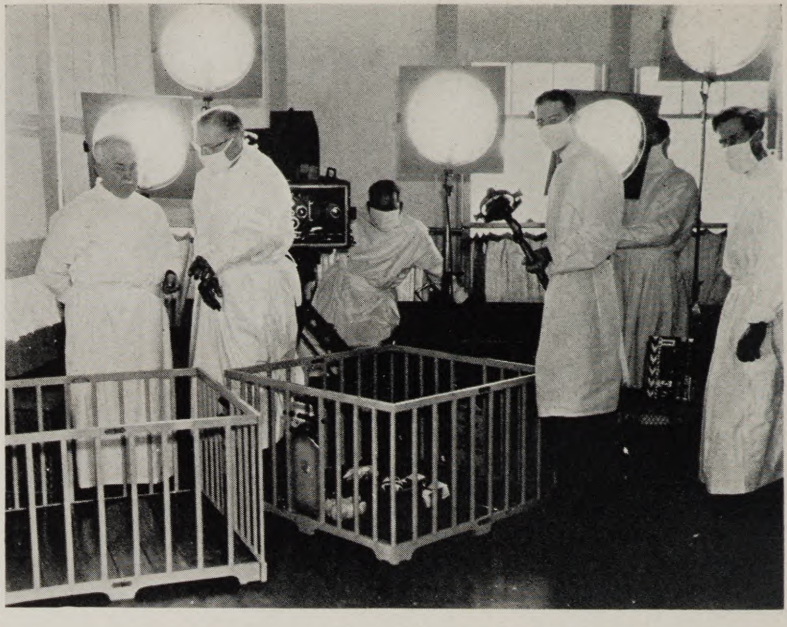
The question of titles in the silent film has to be well planned. In fact, if you can let the action tell the story, do so. Titles at their best, are the one sure way to break the continuous flow, or rhythm.

After your picture is ready for the cutting table be sure and have everything needed and in its proper place. Each scene should be marked in some way. Cut in your scenes in their relation to the story and don't try skipping about as you will find you will have scenes in that should never be used, and you may be repeating scenes; also it is important to have copy of the finished script at hand so that you are not just trusting to memory. Check each scene as complete when it is attached and go on to the next, proceeding this way you will save time.

After you have finished the first cutting, project and make notes for any other changes. You will not be able to cut in your scenes and just let it go at that. Every film can be re-edited many times before it is ready for screening as a finished picture. Where you have many scenes around the same subject, you will find by transposing them in different sequences that it will change your story value. It can add or harm the visual rhythm and make or mar your picture.

Filming the Quintuplets-- and Your Baby

by
Daniel B. Clark, A.S.C.



The actual set-up for shooting the quintuplets, with Cinematographer Clark in the background next to the camera. Note that there is no glare from the lamps . . . text tells you why.

THE BIGGEST PROBLEM in getting good baby pictures is the man at the camera. A baby—any baby—is a natural actor: as long as you let the baby be himself in front of the camera, you are sure to get scenes that will appeal to any audience. Only when your adult mind steps into the picture, and you try to gild the lily, will you find baby filming becoming a problem. The first, last and only rigid rule for getting good stills or movies of babies is to keep everything connected with the picture-making as simple and natural as possible; keep away from camera tricks, and don't try to "direct" the youngster. Whatever the result may be on the screen, it can't help being natural and pleasing!

This was very forcibly brought home to me in my experience photographing the Dionne quintuplets for "The Country Doctor." It was absolutely impossible to bring the "quints" to the studio in Hollywood, so a skeleton unit of us were sent up to Callender, Ontario, to film the scenes in which the babies appeared. Moreover, Dr. Dafoe and the quints' guardians very rightly insisted that none of our picture activities should in any way interfere with the babies' daily routine. And all of us, from Mr. Zanuck and his executives down to the prop men and electricians, were resolved that nothing in our lighting, camera-setups, and the like should in any way endanger the famous babies.

Our first problem was lighting. Our scenes were to be photographed in the quints' own nursery, so we would have to use artificial lighting. Of course, there must be a certain amount of light to give us a satisfactory exposure—but the light could not be so intense that it would injure the babies' eyes. As the room was relatively small (about 17 feet square), we would have to use compact lighting units.

Long before we left the studio, Camera Executive Godfrey Fischer, Walter Strohm, the studio's chief engineer, and I made a series of tests. With the help of babies the same age as the quints, we tested every imaginable type of lamp, light globe, and diffuser until we had a light which, while it gave plenty of light for good photography, bothered the babies so little that they did not even notice when the lamps went on or off.

The units we finally selected were the Mole-Richardson "Cinelites" and "Photolites". The "Cinelite" is a remarkably compact floodlight unit which uses the big No. 4 Photoflood globe. The "Photolite" is a smaller unit using either a 500-Watt clear globe or a small Photoflood; as it has a highly polished chromium-plated aplanatic reflector, it throws a "harder" beam. Our lighting equipment consisted of six "Cinelites" and two "Photolites". That was all!

But good lamps, alone, would not answer the question about protecting the babies' eyes. A Photoflood—even the big No. 4, which is photographically two and a half times as strong as a standard 1000-Watt globe—may not be as hard to look into as a studio-type 5000 or 10,000-Watt globe, but it is quite enough to trouble a baby's eye! What we had to do was to soften the light to a safe point, while yet keeping enough for good camera work. The solution was to screen our lamps with translucent gelatine diffusers—No. 52 Cinema Daylight Blue, to be exact. This is the same diffuser which John Seitz, A.S.C., (who also photographed several of the film's studio-made sequences) uses so successfully in photographing Shirley Temple. When we exhibited our battery of lights to Dr. Dafoe, both he and the newsreel and newspaper photographers assigned to the quintuplets declared that the lights were ideal for lighting babies, though they could not believe there was enough light for good camera work. But there was: in fact, on many shots, we did not have to use nearly all of our lamps! And as for safeguarding the quints' eyes—well, before we left, Dr. Dafoe insisted that the official newsreel and "still" photographers duplicate our lights, even to the diffusers.

When we reached Callander, we learned we would be allowed to photograph the quints exactly one hour each day. This was during one of their play intervals, between the morning nap and lunch time: from eleven A.M. to noon. If the babies happened to be delayed in their baths and other morning duties, it was so much the worse for us; their lunch time was 12:00 noon—and that didn't mean 12:01!

With so short a time for shooting, we naturally tried to make full use of every second. Well before the appointed time, we would be set up and ready to go. Director King and I would have planned out the angles we wanted ("hoped" would be more like it!) to get. The camera and lights would be set up. We ourselves would be ready—thoroughly disinfected and clad in surgeon's gowns and masks. Incidentally, only a fixed number of people are allowed in the room with the babies at one time; we kept

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HERE'S HOW

by A. S. C. Members

Will you please arrange to give the answers to the following questions about animated cartoon making on your page, "Here's How"?

1. In animated cartoons, if we want to show a subject approaching the camera, how are we to do it? By bringing the camera nearer the drawing? If it is done in this way, will it not affect the relative perspective of the picture; being better when the camera is at a distance? How is it done in ordinary pictures?

2. In an article it is said that celluloid pieces should be used to draw the pictures for animated cartoons; but the celluloid pieces being glossy, they don't take ink. If they are semi-matte finished on one side, they will be translucent, and not transparent. What ink should be used? Washable? Or permanent? Can you say which is the best celluloid for the purpose?

3. How is a "pan" taken in animated cartoons?

4. How is the sound dubbed in on animated cartoons?

5. Will the photographic value of a cartoon increase if we use diffusing-screens?

—K. A. J., Poona, India.

1. In normal photography, if we want to show a person approaching the camera, we can naturally have him walk right up to the lens, and if we want the camera to approach him, we can roll it toward him on a wheeled carriage. In animated cartooning, while we can, in some photographing installations, move the camera toward the drawings, it is much simpler all around to keep both the camera and drawings stationary, and to show the apparent movement by drawing it, just as we would draw in any other motion. Suppose, for instance, we have "Mickey Mouse" standing in the middle of a road, and want him to walk toward the camera: we simply draw him stepping forward—just as we would draw any other animation—but each drawing must show "Mickey" a tiny bit larger than the last one, for on the screen, size is the indicator of an object's apparent nearness. As the background remains the same, by the time "Mickey" has walked forward until his size is doubled, he will apparently have come twice as close to us as he was when the action began. If, on the other hand, we want the camera to approach "Mickey", we need not draw a walking motion for "Mickey", but a simple series of pictures in which he grows larger in the same progression. Instead of holding the same background, we animate the background; in this case, progressively altering both scale and perspective, and making the fence-posts, telegraph poles and trees at the side of the road move toward the edges of the picture and grow larger, until they apparently come so near the lens that they are no longer included in the view. It is important, of course, in this sort of action, to take care that we don't let the roadway appear to slip forward under "Mickey's" feet.

2. If your celluloid is good and clean, almost any good waterproof ink will "take" satisfactorily. In my studio, we always wash new "cells" carefully before using them. As to materials, it is hard to advise you as we don't know what is available to you there in India; but Higgins' waterproof black ink and DuPont celluloid are always satisfactory.

3. A "pan" in an animated cartoon is simply made by using a long background, which is moved a definite distance to right or left between each exposure. If we want to "pan" to the right, the background moves to the left, and vice-versa. The background is usually drawn on paper; and if "Mickey" is to be "followed" by the camera during the "pan", "Mickey" is drawn in the usual fashion on "cells", animated in a regular walking cycle. Thus, "Mickey" will appear to walk, though staying in the center of the frame, while the background moves across behind him, exactly like a normal "panning" shot.

4. A thorough discussion of how cartoons are sounded would take up much more space than the editor would allow here; besides, I believe it has already been covered in one or more earlier articles. (See February, 1935, Page 76. —Ed.) To put it briefly the music and the drawings are planned together; the music is specially written for the picture. We have two fixed units to work with: the BAR of music, and the FRAME of picture-film. In preparing the scenario, we know how much film—and hence how many frames—each scene will be given. Thus, knowing the tempo of the music planned, we can accurately foretell that when bar No. so-and-so of the music starts, frame number such-and-such will be on the screen. The music is then recorded, carefully timed so the tempo will be right, and the drawings made and photographed. When the two are completed, they must inevitably synchronize. All that remains is a routine job of re-recording or (if there are no sound-effects or dialogue to be added) merely printing the sound-track onto a single composite print with the picture.

5. I do not believe that there would be any benefit in photographing animated cartoons through a diffusing-screen. Quite the reverse, in fact, for a fuzzy, soft-focus cartoon is definitely unpleasant on the screen, and its action is hard to follow. Cartooning is one phase of cinematography where sharp, precise focus is still a vital necessity.

—Walt Disney.

I have done much experimenting with Max Factor's Panchromatic make-up. I would like to know if professional cinematographers make any allowance for the difference between Mazda and daylight illumination. If so, what filters are used, or what change in the Panchromatic Make-up is made?

—R. V. C., New York City.

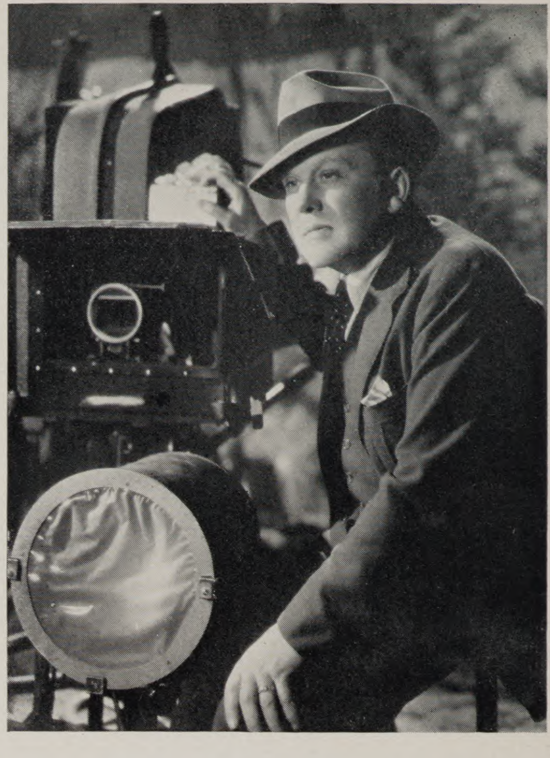
Very few of the A.S.C. members compensate for the difference between Mazda light and sunlight, except where some particular condition may make it necessary. Between the color-sensitivity balance of modern film, and the care with which modern make-up is coordinated therewith, such compensation, while it might be advisable in theory, is rarely necessary in practice. Max Factor's experts point out that their Panchromatic make-up is planned to give the face a uniformity of coloring which to a great extent makes such compensation unnecessary. In practical terms, one is quite safe in forgetting the chromatic differences between sunlight and Mazda light if the make-up is properly applied. If however, you want to be scrupulously accurate, use an Aero 1 filter on exterior scenes.

—Wm. Stull, A.S.C.

I Remember Way Back When

by

Charles Rosher, A.S.C.



IN THE YEAR 1911, William Howard Taft's ample avoirdupois was overflowing the Presidential chair. Ladies' skirts swept sidewalks clean. Tightly-laced armor-plate casements imparted hour-glass proportions to their figures. The Gibson Girl was hot stuff. College boys needed hair cuts, sported underslung pipes, bulldog shoes and peg-top pants.

The delightful word "saloon" embellished building facades at frequent intervals. Between punctures, daring prophets averred the auto was here to stay. Los Angeles real estaters let their enthusiasm run riot to boast their city would one day reach half a million souls. Animated pictures were flickered at the swankier nickelodions. A few enterprising vaudeville virtuosi went so far as to include a reel in variety bills, but deep thinkers as a rule, preferred the acrobats.

Hollywood was a hope, albeit a thin one, and not a mental condition. It consisted of wide expanses of landscape in amazing variety, a few cow-barns and sheds, considerable sunshine and a band of brave men who were gambling their all in the accouchement of a great industry.

Following happy years of portraying crowned and titled heads of Europe—there were more of them to photograph in those days—as associate of Richard Speaight, the Court Photographer of London, the Spring months of that year found me in Hollywood. Love for travel, incurable curiosity, a spirit of adventure, impelled the visit.

Those two film-pioneering Englishmen, David and William Horsley, had founded Nestor Films, later to become the nucleus of Universal. I spent an afternoon in pleasant conversation with them. Leaving their bleak quarters, I was approached by their general assistant. I suppose he was one of the first of a long line of future Production Managers.

"So you're a camera man?" he challenged.

I confessed to being a photographer by profession.

"Then let me see you thread that camera!"

I did so under his doubting, you've-got-to-show-me glare. This, I learned later, was the crucial test. One who could thread a camera was perforce a camera man. I had a job.

Not one Hollywood camera cranker at that era, myself excepted, was a professional photographer. One reason why so many of them fell by the wayside when photographic values became demanded in films.

I was given a camera affectionately known as Billiken. Its large wooden case resembled a lady's dressing case. It was some two feet high and long, and about six inches thick. A carrying handle was at the top. A lone 50mm lens projected at the front. The mechanism, assembled by the Horsley Brothers, was a composite of component parts taken from many cameras. I recall it had a Gaumont sprocket and Williamson-Beater movement. Magazines were inside the case. To fade out, you reached around in front and screwed the diaphragm closed, still cranking with the right hand.

We produced the stirring drama, one full reel in length, "The Indian Raiders." It was one of the earliest "independent" productions ever made in this country. For this epic, real Indians were imported all the way from New Mexico by Jack Parsons, who remained to establish the Western Costume Company.

Camera set-ups on location were established by the director moving about until the sun shone brightly over his right shoulder. Some would stand, watch in hand, timing the crank speed while a scene was being shot. An unfailing sixteen per second was the true test of a competent camera man.

First thing in the morning, I would load my own magazines. Following the day's shooting, I would take the film to a darkroom maintained in a cow-shed near Gower and Sunset, where the Christie studio later was erected. Here I would help develop the negative.

I was still photographer as well. When occasion required, a postcard size kodak was rented by the day and a roll or two of film purchased. The studio owned no still cameras, and the 8x10 negative had not yet come into general use. I would, of course, develop the rolls and later throw up enlargements to the desired dimensions.

There was no printing machinery here to handle motion picture film. The picture was cut directly from the negative with all hands helping. We thought nothing of running original negative through projectors. Scratches and other abrasions were a mere detail. The completed reel of cut and assembled negative was shipped off to Chicago or New York for printing.

Continued on page 174

WHEELS OF INDUSTRY

New Photoscop

● The wide use of exposure meters within the past few years and the constantly improved designs always causes a stir in photographic circles when a new instrument is announced.

The recent release of a new model by Photoscop through Photo Utilities of New York naturally caused much interest in this model.

According to the announcement of this concern the new Photoscop is small enough to carry in the vest pocket. It comes with a handy carrying case. Merely the opening of a friction catch places the meter in immediate position for use.

This new model, like its forerunners, is based on the Scheiner degree rating. Its main claim for popularity is that it is possible to present both film speed and shutter speed and secure a direct reading of the lens setting without any further manipulation of the meter.

There is one scale for the Scheiner rating. This scale is first set, then the second pointer is set at the shutter speed or frames per second speed. The meter is now ready for direct reading so long as you are shooting that film and at the pre-set speed. You can shoot all day, all week or all year without a further setting if the same film and the same shutter speed is used.

However, the settings can be changed without any trouble for the use of different film or shutter speed. If you are shooting both a still and movie camera and you want to use the meter for both, it can be changed from one to the other and back again very quickly.

The placement of its photo electric cell is stressed by the makers of this meter. They remark on this point as follows:

"An ingenious placement of inclined photo-cell and mirror limits the angle of measurement to only about 45 degrees of practical photographic importance. The region directly in front and just below the horizon is favored. The 'toplight' influence is completely eliminated."

Many have felt that a meter with a large angle took in much more than is taken in by the lens and therefore might not give a true reading. Also the sky influence is constantly stressed. This meter places its cell so that it receives the direct reflection of light from the ground, but the sky reflection is transmitted via a mirror, thus they claim, reducing its influence.

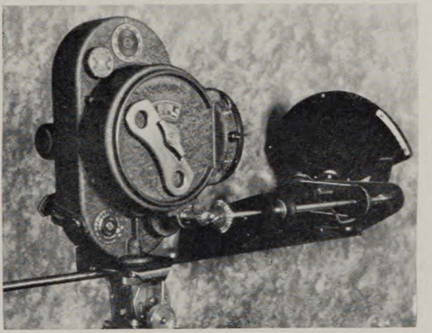
Reading can be secured in exposure time ranging from 30 seconds to 1/1000 seconds. Cinematic taking speeds from 8 to 96 frames per second. Film speed from 14 to 29 Scheiner and lens apertures from F/1 to F/45.

Film Catalog

● Mogull Bros., Inc., of New York City, announce a new catalog of 16mm Film Rental films. This catalog is available without cost, direct from Mogull Bros.

DuMorr for Filmo

● J. D. Cochrane, Jr., now announces he has widened the scope of his DuMorr Radial Wipe by making it available for the Filmo 70D. Up until now it could be used on the Eastman Special 16mm and the Victor Model 5. This device permits the cinephotographer to make the professional type of wipe off and wipe on with his camera if it is any of the three makes mentioned above.



Improved Screen

● It is the claim of the Motion Picture Screen & Accessories Co. of New York City, that it has in conjunction with one of the leading textile mills of the country, so perfected its screen cloth that it will retain its basic white for a longer period and will continually project images with greater brilliancy.

Another improvement is claimed that will simplify the operation of the screen. The screen now raises automatically and instantly by merely lifting it up from the box.

Leica Exhibit

● Following is a schedule of the cities which the Second International Leica Exhibit will visit during the months of April, May and June. A special illustrated lecture will be given in each city.

Minneapolis and St. Paul—Dates: Thursday, April 2nd to Sunday, April 5th, inclusive; location, West Hotel, Colonial Room, Hennepin Ave. at 5th St.; hours, 11 A.M. to 9 P.M.; lecture, Friday, April 3rd, West Hotel, Moorish Room, 8 P.M.

St. Louis, Mo.—Dates, Thursday, April 9th to Monday, April 13th, inclusive; location, St. Louis Public Library, Art Room; hours, 9 A.M. to 5 P.M.; lecture, Saturday, April 11th, St. Louis Public Library, Assembly Room, 7:45 P.M.

Indianapolis—Dates, Wednesday, April 15th to Saturday, April 18th, inclusive; location, L. S. Ayres Co. Exhibit Hall, hours, 9 A.M. to 9 P.M.; lecture, Friday, April 17th, L. S. Ayres Co. Auditorium, 7:30 P.M.

Cincinnati—Dates, Tuesday, April 21st to Saturday, April 25th inclusive; location, Gibson Hotel, Club Rooms A, B and C, 10th floor; hours, 11 A.M. to 9 P.M.; lecture, Gibson Ball Room, Friday. April 24th, 8 P.M.

Columbus, Ohio—Dates, Tuesday, April 28th to Friday, May 1st inclusive; location, Southern Hotel, Mezzanine Lounge; hours, 11 A.M. to 9 P.M.; lecture, Hall, Thursday, April 30th, 8 P.M.

Pittsburgh—Dates, Tuesday, May 5th to Saturday, May 9th inclusive; location, William Penn Hotel, Adonis Room; hours, 11 A.M. to 9 P.M.; lecture, Cardinal Room, May 8th, Friday, 8 P.M.

Washington D.C.—Dates, Tuesday, May 12th to Saturday, May 16th inclusive; location, Willard Hotel, Bamboo Room; hours, 11 A.M. to 9 P.M.; lecture. May 15th, Friday, Willard Room, 8 P.M.

Baltimore, Md.—Dates, Tuesday, May 19th to Saturday, May 23rd inclusive; location Enoch Pratt Library, Cathedral & Mulberry Sts.; hours, 10 A.M. to 9 P.M.; lecture Enoch Pratt Auditorium, Friday May 22nd, 8 P.M.

Philadelphia, Pa.—Dates, Wednesday, May 27th to Thursday June 11th inclusive; location, Boyer Galleries, Broad St.

Continued on page 179

ENLARGEMENTS OF 16mm FILM

The making of satisfactory enlargements from 16mm reversal film frames has been a problem to me. I have had a great deal of difficulty in getting the intermediate greys when making the enlarged negative, also the grain was too noticeable. When this negative was further enlarged onto bromide paper the grain and loss of detail was so bad that the whole process was not worth the effort. Here is a method that works very well.

Make your enlargements by reversal. Use Eastman Direct Positive Paper and the solutions recommended for it. An enlargement on this paper can be exposed, processed and dried in less than 5 minutes, as the paper is waterproof and the developments and reversal are very rapid. The exposure must be correct as there is no latitude, and no control during processing. Full instructions and formulas are included in each package of paper so it is not necessary to state them here. I have tried reversal with the usual contact and enlarging papers and they will not work. Here are a few hints that will help to insure your success with direct positives.

Use a series 2 safelight.

Give the paper at least a 20-second wash under a lively stream of tap water, after each solution used, to avoid contamination.

Direct positive paper comes in only two surfaces, semi-gloss and matte. Matte looks better for your album.

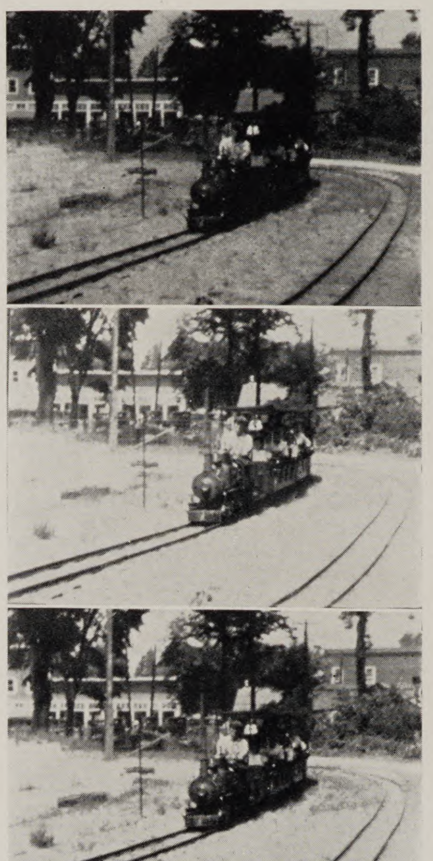
You will get a black border around your prints whether you like it or not.

Turn your white lights on when the negative image has completely disappeared in the bleach bath.

Don't forget to cover up your unused paper each time you remove a sheet.

Remember, that this process reverses the image from left to right, so it cannot be used to copy printed matter directly, unless a prism is used, or you recopy the first reversal.

Figure 1 shows the result of under-exposure; figure 2, over-exposure. Correct processing was done in each case. Figure 3 shows the result of correct exposure and processing. Good enlargements from 16mm frames were the primary reason for my experiments with direct positive paper but there are other practical uses.



All are enlargements made on reversal paper. Top is under-exposed; next over-exposed, and third from top correctly exposed. Bottom shows how these enlargements may be used for titling.

Figure 4 shows an easy way to make a personalized art title. Just clip a frame from the scene which is to follow the title, reverse it, title it and there you are. Let's suppose we find a large illustration in a magazine which would make a good title background, but it is too large to slip into our titler. Photograph it on direct positive paper, letter it and you have your title card. Try composites by this method sometime, it will surprise you.

—R. Lumley.

British Institute Expands

● During the few years of its existence the Institute of Amateur Cinematographers of Great Britain has had a phenomenal growth. Under the guidance of F. R. Chadwick, its secretary, the organization has not only increased its size, but has been an influence and a factor in things cinematographic throughout Great Britain. Since its inception it has had the support and encouragement of many in the professional movie studios. Alexander Korda has always lent it willing support.

It was not surprising that the organization should announce a widening of its by-laws so as to also make a professional a part of the institute. To this end the name was changed to the British Institute of Cinematography. This new institute will be much broader in its scope, it will profit immensely from its connection with the active studios in London. The professional cameraman of London will be admitted to membership in a specially created class. The amateur will still remain a part of the re-organized institute.

We feel certain that the British amateur is appreciative of this move. He has always taken his photography and cinefilming very seriously. He realizes the great value attached to having the professional an important part of an organization in which he can claim membership. He knows this association assures him fundamentally-correct information, on things pertaining to cinematography. He knows the source of his information is authoritative; that it comes from men who have made this art their life study and not merely a by-product of an industry which grew up around a hobby.

The average British amateur is very well versed in photography; with this new set-up much will come from the British cinematographer.

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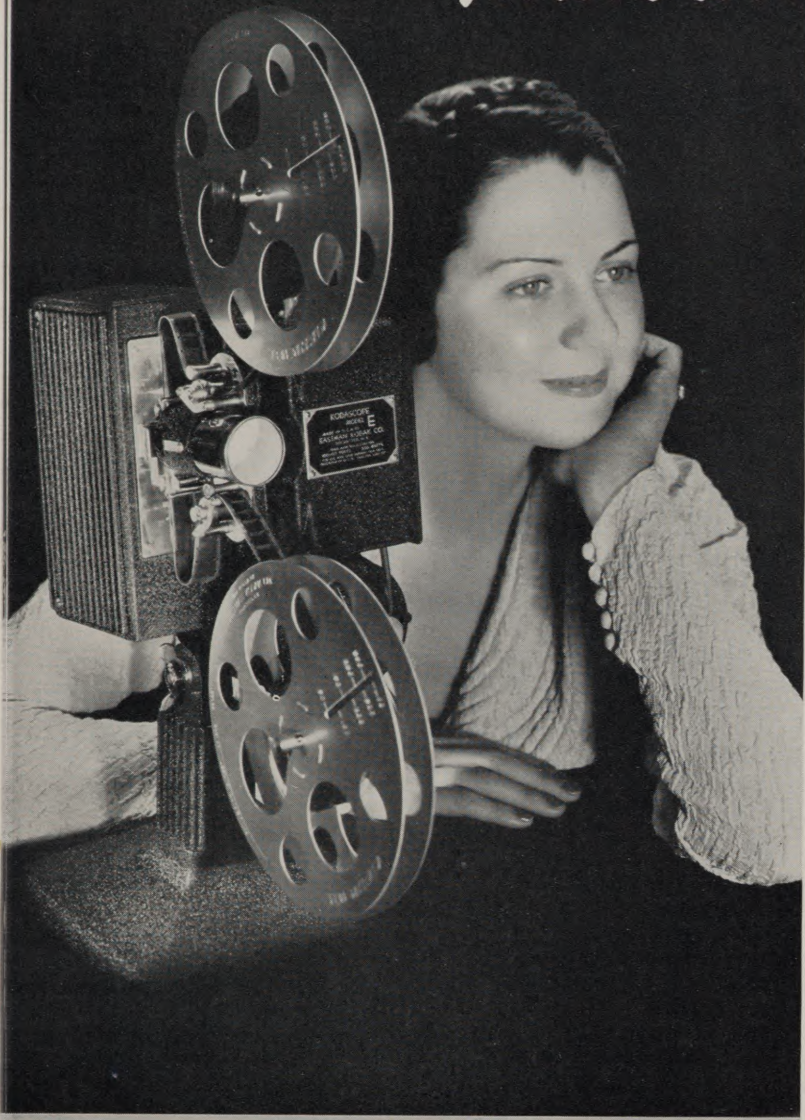

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I Remember Way Back When

Continued from page 170

We had but one grade of negative, Eastman orthochromatic, and thought ourselves lucky to get that. When afternoon brought a yellow light, we stopped shooting. This yellow light was a serious bugaboo. I recall, a bit later, the "Don't Shoot" flag at Universal. A flagpole was put up on a knoll where it could be seen from all sections of the lot. When a cloud shadowed the main office building or the light appeared yellow to the camera department head, up went the flag and all shooting ceased. That camera department head, by the way, quit shortly after to take up the more advanced profession of selling Fords.

We were not held in any particular regard by the native community nor by the outside professional world. I know that I looked with natural distaste upon the capers and crimes I was daily committing against the fair name of photography. No self-respecting photographer should be so demeaning himself, I very well realized, but the excitement held me fast.

One famous New York stage manager—now one of our most successful character actors on the screen—was implored to lend his talents to Hollywood. He stood steadfast against such professional slumming. Finally he condescended to accept a fat salary with expenses just to visit us and see how movies were made. During the month of his sojourn every effort was expended to convince him of the respectability of our efforts. But he would have none of it. He rejected the proffered directing contract written in fabulous figures and haughtily returned to New York. The auto might be here to stay, he reckoned, but not the movies.

Progress came rapidly. Otis Turner, the "Dean of Directors," produced that great historic opus, "The Coming of Columbus," in Chicago. In one majestic reel he pictured the whole affair, winding up with Christopher and his crew landing on the lake front in full regalia. To capture the authentic and exotic tropical atmosphere, he stuck palm leaves—not palm trees, mind you, but just leaves—in the sand!

I went into big—colossal, I might even say—productions in 1912, these running into two full reels. "Early Days Out West" was the first of these gigantics. Wallace Reid was the star. His father wrote it and Wally did the cutting.

Soon after, William Bitzer, justly famous camera man for D. W. Griffith, startled our world by using close-ups. Loud were the repercussions of this unprecedented move. Screen characters were being mutilated by being ruthlessly cut off at the knees or even up to the

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VICTOR
16 mm

waist. The audiences wailed and protested. They were paying their good money to see all of their favorite screen actors—not portions of them. Actors, of course, went for the new idea with great gusto.

A golden-haired girl had come to Hollywood. She was of the stage, an actress, a "star" no less, with name featured on the screen for personal identification. She was the "Biograph Girl" later, "America's Sweetheart." Her name was, and still is, Mary Pickford. One day Jesse Lasky called me in and awarded me what was considered the choicest camera assignment of the day, the plum of photographing Miss Pickford. I photographed her in "How Could You, Jean?" in 1915 or 1916, and in every following picture she made for twelve years. It ran up to five reels in length. William D. Taylor, later murdered, was director.

I had a Pathe camera with the same single 50mm lens. I had Kleig lights, broads and spots, and reflectors. Motion picture camera work was graduating into realms of photography.

Those, my friends, were the halcyon days!

FILMING THE QUINTUPLETS

Continued from page 168

our crew to that number, with Dr. Dafoe, of course, included: if for any emergency we needed an extra man, Dr. Dafoe, abiding by his own rule, courteously gave up his own place.

When the word came that the babies were ready, we would turn on the lights. For if the lights were on when the babies were brought in, they would not notice them; if we turned them on while the quints were in the room, though, they would notice it at once. Once the babies entered, we simply started the camera and let them "direct" themselves. They did it all right! Our Hollywood actors—Jean Hersholt and Dorothy Peterson—were unusually capable players, but they found prepared routines and lines were of no avail with the quints. Those young ladies simply took things into their own chubby hands, and instead of the grown-up players "leading" them to do what was wanted, the babies did as they pleased, leaving the grown-ups to follow gaspingly.

Some measure of "direction" we did manage to achieve, however. If for instance we wanted all five to do something—like tipping over a chair, for example—we would get one of them to do it. Then all the other four would follow suit! Too, if we wanted them to look one way or the other, we could usually attract their attention by turning on a hitherto dark lamp on the side we wanted them to turn toward. I had to evolve a most elaborate set of pantomimic signals to tell my electricians what I wanted done during a shot. We gestured not only because we were recording sound, and because voices might distract our little starlets, but because frequently I would set up some of the lamps outside, to throw their beams through a window, replacing the sun.

Since we couldn't predict what the babies were going to do, or when, most of our scenes consisted of the unbroken 1,000 feet of film in the camera's magazine. The cutter did the rest! We made long-shots, with a wide-angle lens, medium-shots, and individual, big-head close-ups of the babies. In making the closer shots, we generally used normal focus lenses rather than lenses of longer focal length. An advantage in this, of course, was the fact that we had the camera in a soundproof "blimp," so its

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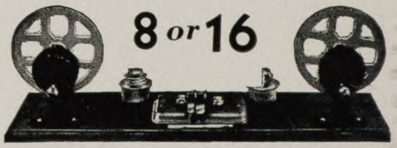
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noise could not attract the attention of the quint being closeupped.

The lightings were kept very simple. In most of the shots, we used the same sort of a straightforward, balanced front-lighting that any home-movie maker would use. Frequently, as the weather was cloudy most of the time, we would set the two Photolites outside a window, and use the strongly directional beams from their polished mirrors to suggest sunlight along the inner walls. On sunny days, we actually drew the curtains, for the sunlight streaming through the windows would have been too much for our softer light to balance!

Every bit of this technique can be adapted to the requirements of cinefilming babies in 16mm—or 8mm, for that matter. Fast film and light-walled rooms will simplify your lighting (the Dionne's nursery had cream-colored walls). Your regular Photoflood lamps will do excellently; fit them with simple diffusers of the same translucent "daylight blue" gelatin we used, if you can get it, or with daylight blue tracing-cloth, otherwise. Keep your lighting simple—no backlighting or other tricks. Flood it pretty uniformly over the whole area you expect the baby to move about in: you can't tell where the youngster may choose to do his acting, you know.

Have everything set up and ready when the baby comes into the room; don't try to set up the camera and lights in front of the baby, for that will waste time, and make the baby so curious that you won't get good pictures. And do your filming during the baby's regular playtime, so that you'll get the child fresh and in a playful, natural mood. Don't for heaven's sake, drag him out of bed, or from his play, to be pictured; the only thing you'd get under such conditions would be a picture of a cross baby.

Have the lights on when the baby comes in, and start shooting right away. If you want to direct his attention, leave one light off, and switch it on when you want the baby to look that way. Avoid sudden noises and movements; with an ordinary camera, don't try to come so close that the baby will want to investigate its purr.

And let the youngster "direct" itself. Give it something interesting to do, and it will make an interesting picture without any help from you. You don't have to show a baby how to be cute!

Make your scenes the full length of a camera-winding. You can always cut out surplus footage—but you can't capture cute actions your camera has missed. You may use more film that way—but believe me, you'll also get real baby pictures.

In all of this don't forget another important psychological phase of child-photography: having someone the child knows and loves present, to put him at ease. I learned this long ago in photographing my own children. Moreover, I found that I'd get the most characteristic pictures if I let somebody else handle the camera, while I stood by—either in or out of the picture, as the occasion might demand—to reassure the youngsters. If you do the camerawork yourself, nine times out of ten, your little subject will become so engrossed in "posing for Daddy" that the picture on the screen will look horribly stiff and unnatural. But if you can leave the camerawork to somebody else, you can easily get the youngster to doing something that interests it and is natural; your mind (and the child's) will be free from all thoughts of pictures—and then your accomplice at the camera can easily get really characteristic actions and expressions.

The same idea is equally valuable if you are picturing someone else's children. More so, perhaps, for the child will be more at ease with some loved one around. We found this true with the quints: they idolize Dr. Dafoe, and when he was in the room, they were like different children. In fact, not only his fine cooperation, but the absolutely marvelous way he is bringing these children up, should receive the lion's share of the credit for

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the pictures we got. No father could love his own children more deeply, or more intelligently, than Dr. Dafoe loves his little charges, and he is such a fine man it is no wonder that the babies reciprocate his affection. And where such a bond binds an adult and a child, it will show on the screen, even if the grown-up is not in the picture, but merely smiling reassurance from beside the camera. So don't be one of those cynical camerists who considers the presence of a fond parent a hindrance in picturing the baby!

Explaining the Laws of "Symbolism"

Continued from page 165

law number 4 because the audience had to think several times before the meaning was understood because the "symbolism" was incomplete inasmuch as the electric bulb was still burning even though the wire was motionless. The motionless wire built up one idea which was torn down at the same time by the burning bulb. In other words: This "symbolism" was inconsistent as to its meaning and therefore defeated its very purpose. This "symbolism" was applied just for its effect (swinging light throwing shadows over watching man) with entire disregard as to its purpose of story-telling.

The correct "symbolism" in this particular scene would have been a shot of the bottle of wine, upset during the fight, slowly pouring out its liquid on the floor, finally dripping until the bottle is empty and the last drop had splashed on the floor in the pool of wine.

This "symbolism" is correct because it obeys all four fundamental laws and is consistent in its application: It is universally understood (law number 1); it is in the mood of the sequence inasmuch as the bottle of wine (drink) is close to drinking man (law number 2); the object is part of the locale, very much so because the stabbed man had handled the bottle and poured drinks from it (law number 3); it is recognized at first glance: liquid dripping out of bottle—spirit (life) leaving body of stabbed man (law number 4).

"Symbolism" must, in order to be successful, like everything else in picture-telling, be applied with consistency (according to its laws), and used with common sense, something which is often very much lacking in picture-makers.

The Simplest Filtering is Best

Continued from page 166

definite separation between the horizon and the sky. A mild correction will darken the sky several shades, until it begins to provide something of a background for the clouds; and it will begin to make the various greens of the foliage separate, and if there isn't much haze, will sharpen the horizon-line. An intermediate correction will darken the sky until it gives us a gray that is a close monochrome approximation of what our eyes see in the blue of the sky, and the clouds will stand out normally. At the same time, the other factors will improve similarly. An extreme over-correction, on the other hand, will over-darken the blue sky—sometimes turning it almost jet black—and the clouds will of course stand out exaggeratedly. At the same time, it will overdo the separation of the various green tones in vegetation, and it will cut through most haze like a cleaver.

Half the art of filtering lies in learning when to use which type of correction. It isn't so much that you can produce highly corrected effects—it is deciding if you should do it or not. Extreme corrections may make an individual scene very striking; but the relation of that shot to all the contiguous scenes should be weighed carefully beforehand.

And there's another matter that demands consideration when you are filtering: the effect of filters on people in the scene. All of these filters, in darkening the blue, tend to lighten the yellows and reds. In other words, suppose we begin a sequence showing a girl wearing a red dress: where no filter is used, that dress will photograph rather dark—just how dark depends, of course, on the type of film used. But as we start filtering, each step in filteration

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will progressively lighten up the dress, until with the more extreme degrees of over-correction, the dress which we first saw as a dark gray or black, has become a very, very light gray—almost white!

The same thing happens to the red (natural or otherwise) of the lips and cheeks, and to a certain extent to the normal flesh tones, as well. Meanwhile, our pretty girl has become vastly less pretty!

Of course, there are times when this effect may be all to the good. For instance, if you are traveling in the South Seas, in India, or in Mexico, where so many of the natives have dark complexions you will find that even on Superpan, unfiltered, their skins photograph abnormally dark. Putting on a fairly potent filter (on Panchromatic emulsions, a G is good), you can lighten these swarthy skins to a point where they will be much more pleasing. On the other hand. when you film a florid-faced person like Irvin S. Cobb, avoid these filters as you would the plague!

I suppose that before we leave the subject of filters, some reference must be made to the matter of "filter-factors". Contrary to a very general misapprehension, these are not rigidly fixed quantities. Far from it—they vary according to the type and make of film used. If you will stop and remember that each different type of film "sees" colors differently, and that the various brands of film have minor differences in speed and color-balance, you will see that this must be so. Take the G filter, for example: on Ortho film its factor is 24; on Agfa Plenachrome, 8; on Eastman regular Pan, 5; on Eastman or Agfa Superpan, 3; and on DuPont Super Pan (negative), 2.9.

Lastly, there is always the question of deciding which filter to use. The simplest way, I think, is to judge visually. Get a good monotone viewing glass—and be sure to get the type intended for the film you use; an Ortho glass is no use if you are using Pan nor is a pan glass accurate with Supersensitive. Look at the scene through the glass: if it looks all right, don't bother about a filter; if it doesn't look the way you'd like it screened, hold your filter in front of the viewing-glass. When the scene looks the way you want it, as seen through viewing-glass and filter, you are looking through the filter that will give you the right effect on the screen.

Wheels of Industry

Continued from page 171

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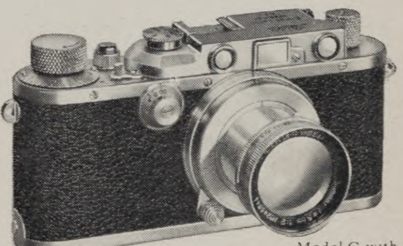
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New Films

● Four additional brand-new films by the well-known naturalist Arthur C. Pillsbury are announced for outright sale and rental by Bell & Howell Company. The films are:

Life in the South Seas (1 reel)—A trip to Hawaii and Samoa.

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Lens Hood

● A new lens hood and graduated filter are announced by Burleigh Brooks for use with the Rolleiflex and Rolleicord cameras. The hood, correctly shaped for the square format of those cameras, is fitted with a cam-actuated contracting grip arrangement which practically locks it to the lens mount. Provision is also made for holding the new 33mm disc filters inside the hood.

New Leica Accessory

● A new rapid winder has been added to the Leica accessories according to an announcement from E. Leitz, Inc. This consists of a special baseplate which is interchanged with the regular baseplate of the Leica. A trigger is provided on the rapid winder, and by pulling it along a groove, the shutter is wound and the film transported. To make the exposure, it is therefore, only necessary to pull the trigger of the rapid winder and press the shutter release button. The rapidity with which exposures can be made is limited only by the speed with which the photographer can pull the trigger. It takes but 15 to 20 seconds to make 36 exposures.

We are informed by E. Leitz, Inc., that a slight adjustment will have to be made on older models of the Leica camera to enable them to accommodate this new accessory.

British Factory for M-R Lamps

British and Continental studios are soon to have British-built Mole-Richardson lamps. An English affiliated company is being formed to manufacture and service Solarspots, H-I-Arcs, and other M-R products abroad. Peter Mole, President of Mole-Richardson, is now in London completing final organization of the firm's British offshoot. With him is Robert Linderman, who recently resigned from the Hollywood staff of the General Electric Company to take the post of managing director of the new company.

Soft Focus Lens

●According to an announcement from Burleigh Brooks, he has placed on the market a Rolleiflex lens accessory known as the Duro Rolleiflex Soft-Focus Lens. From the description it appears that it is only necessary to place this over the regular lens, the same as a portrait lens is attached. It apparently does not take the place of the existing lens.

A Continuity for Easter

Continued from page 164

SCENE 44: CLOSE-UP of Junior stuffing a portion of egg into his mouth with most evident enjoyment.

SCENE 45: CLOSE-UP of Daughter, applying salt and pepper, disposing of the egg in approved fashion.

SCENE 46: CLOSE SHOT of Daughter placing rabbit on table between herself and Junior.

SCENE 47: CLOSE-UP of the children with their Easter rabbit. They are trying to share their eggs with the rabbit. It sniffs at the proffered tidbit, wrinkles its nose, but declines. The children are laughing merrily. It has been a great Easter. FADE OUT.

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For the Amateur

The American Society of Cinematographers has organized a junior branch of its association for the amateur to be known as the **SOCIETY OF AMATEUR CINEMATOGRAPHERS.**

For many years amateurs have been requesting the American Society of Cinematographers to form an organization for them that would be representative, authoritative and instructive.

While it would be easy to form such an organization in the spirit of enthusiasm that usually accompanies such pleas, but to insure the continuance of such an association it needs real ideals and a constructive policy.

The Society of Amateur Cinematographers is not just a society to give to the amateur letters to be used after his name and it does not throw its membership open to everyone who has the fee to join. The Society of Amateur Cinematographers is based on strict and sensible requirements.

First, the applicant must own a camera; second, he must have made motion pictures, and third, he must submit a picture to the reviewing board which is made up of members of the American Society of Cinematographers. This does not mean that the amateur is going to be judged by 100% professional standards as practically every member on the reviewing board operates either an 8mm or 16mm camera and is familiar with the shortcomings of the amateur's equipment.

When an amateur has been admitted to the SOCIETY OF AMATEUR CINEMATOGRAPHERS, it is a sign of achievement; it is an indication that he is truly an amateur cinematographer, and he knows that his fellow members are active and accomplished amateurs. Also he is being guided by experts, by the acknowledged camera masters of the world, by Hollywood's greatest directors of photography.

Membership will include a subscription to the "American Cinematographer". It will also include the use of the outstanding films made by members of the Society of Amateur Cinematographers. As films are submitted, the best will be duplicated and an analysis prepared by a member of the American Society of Cinematographers. This analysis will go with the picture and the picture will be available to any member of the Society of Amateur Cinematographers.

For the most outstanding members and the most able amateur cinematographers, a fellowship will be created, giving that amateur the title of Fellow of the Society of Amateur Cinematographers. Requirements for Fellowship will be announced later.

Membership in the Society of Amateur Cinematographers gives each member access to the film library, privilege of asking questions, and advice on all branches of movie making.

As the Society grows, it is the plan to create branches in other centers to be made up of members living in those cities. In Hollywood a branch will be created and the programs originated here will go forward to other branches as units.

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